

## **VI.-BIBLIOGRAFÍA**



**A**

---

Abe J., Takahashi M., Ishida M., Lee J. D., and Berk B. C. (1997) c-Src is required for oxidative stress-mediated activation of big mitogen-activated protein kinase 1. *J Biol Chem* **272**, 20389-20394.

Abiru Y., Nishio C., and Hatanaka H. (1996) The survival of striatal cholinergic neurons cultured from postnatal 2-week-old rats is promoted by neurotrophins. *Brain Res Dev Brain Res* **91**, 260-267.

Adrain C., Creagh E. M., and Martin S. J. (2001) Apoptosis-associated release of Smac/DIABLO from mitochondria requires active caspases and is blocked by Bcl-2. *EMBO J* **20**, 6627-6636.

Afrakhte M., Moren A., Jossan S., Itoh S., Sampath K., Westermark B., Heldin C. H., Heldin N. E., and ten D. P. (1998) Induction of inhibitory Smad6 and Smad7 mRNA by TGF-beta family members. *Biochem Biophys Res Commun* **249**, 505-511.

Airaksinen M. S. and Saarma M. (2002) The GDNF family: signalling, biological functions and therapeutic value. *Nat Rev Neurosci* **3**, 383-394.

Akerud P., Alberch J., Eketjall S., Wagner J., and Arenas E. (1999) Differential effects of glial cell line-derived neurotrophic factor and neurturin on developing and adult substantia nigra dopaminergic neurons. *J Neurochem* **73**, 70-78.

Akerud P., Holm P. C., Castelo-Branco G., Sousa K., Rodriguez F. J., and Arenas E. (2002) Persephin-overexpressing neural stem cells regulate the function of nigral dopaminergic neurons and prevent their degeneration in a model of Parkinson's disease. *Mol Cell Neurosci* **21**, 205-222.

Alberch J., Perez-Navarro E., and Canals J. M. (2004) Neurotrophic factors in Huntington's disease. *Prog Brain Res* **146**, 195-229.

Alcantara S., Frisen J., del Rio J. A., Soriano E., Barbacid M., and Silos-Santiago I. (1997) TrkB signaling is required for postnatal survival of CNS neurons and protects hippocampal and motor neurons from axotomy-induced cell death. *J Neurosci* **17**, 3623-3633.

Alder J., Lee K. J., Jessell T. M., and Hatten M. E. (1999) Generation of cerebellar granule neurons in vivo by transplantation of BMP-treated neural progenitor cells. *Nat Neurosci* **2**, 535-540.

Alderson R. F., Alterman A. L., Barde Y. A., and Lindsay R. M. (1990) Brain-derived neurotrophic factor increases survival and differentiated functions of rat septal cholinergic neurons in culture. *Neuron* **5**, 297-306.

## **Bibliografía**

---

- Alexi T., Venero J. L., and Hefti F. (1997) Protective effects of neurotrophin-4/5 and transforming growth factor-alpha on striatal neuronal phenotypic degeneration after excitotoxic lesioning with quinolinic acid. *Neuroscience* **78**, 73-86.
- Alexi T., Borlongan C. V., Faull R. L., Williams C. E., Clark R. G., Gluckman P. D., and Hughes P. E. (2000) Neuroprotective strategies for basal ganglia degeneration: Parkinson's and Huntington's diseases. *Prog Neurobiol* **60**, 409-470.
- Aliaga E., Carcamo C., Abarca J., Tapia-Arancibia L., and Bustos G. (2000) Transient increase of brain derived neurotrophic factor mRNA expression in substantia nigra reticulata after partial lesion of the nigrostriatal dopaminergic pathway. *Brain Res Mol Brain Res* **79**, 150-155.
- Allsopp T. E., Kiselev S., Wyatt S., and Davies A. M. (1995) Role of Bcl-2 in the Brain-Derived Neurotrophic Factor Survival Response. *Eur J Neurosci* **7**, 1266-1272.
- Almeida R. D., Manadas B. J., Melo C. V., Gomes J. R., Mendes C. S., Graos M. M., Carvalho R. F., Carvalho A. P., and Duarte C. B. (2005) Neuroprotection by BDNF against glutamate-induced apoptotic cell death is mediated by ERK and PI3-kinase pathways. *Cell Death Differ*.
- Altar C. A., Boylan C. B., Jackson C., Hershenzon S., Miller J., Wiegand S. J., Lindsay R. M., and Hyman C. (1992) Brain-derived neurotrophic factor augments rotational behavior and nigrostriatal dopamine turnover in vivo. *Proc Natl Acad Sci U S A* **89**, 11347-11351.
- Altar C. A., Cai N., Bliven T., Juhasz M., Conner J. M., Acheson A. L., Lindsay R. M., and Wiegand S. J. (1997) Anterograde transport of brain-derived neurotrophic factor and its role in the brain. *Nature* **389**, 856-860.
- Althini S., Usoskin D., Kylberg A., Kaplan P. L., and Ebendal T. (2004) Blocked MAP kinase activity selectively enhances neurotrophic growth responses. *Mol Cell Neurosci* **25**, 345-354.
- Altman J. (1992) Programmed cell death: the paths to suicide. *Trends Neurosci* **15**, 278-280.
- Anderson S. A., Qiu M., Bulfone A., Eisenstat D. D., Meneses J., Pedersen R., and Rubenstein J. L. (1997) Mutations of the homeobox genes Dlx-1 and Dlx-2 disrupt the striatal subventricular zone and differentiation of late born striatal neurons. *Neuron* **19**, 27-37.
- Andreassen O. A., Ferrante R. J., Hughes D. B., Klivenyi P., Dedeoglu A., Ona V. O., Friedlander R. M., and Beal M. F. (2000) Malonate and 3-nitropropionic acid neurotoxicity are reduced in transgenic mice expressing a caspase-1 dominant-negative mutant. *J Neurochem* **75**, 847-852.

---

## Bibliografia

- Angley C., Kumar M., Dinsio K. J., Hall A. K., and Siegel R. E. (2003) Signaling by bone morphogenetic proteins and Smad1 modulates the postnatal differentiation of cerebellar cells. *J Neurosci* **23**, 260-268.
- Ankarcrona M., Dypbukt J. M., Bonfoco E., Zhivotovsky B., Orrenius S., Lipton S. A., and Nicotera P. (1995) Glutamate-induced neuronal death: a succession of necrosis or apoptosis depending on mitochondrial function. *Neuron* **15**, 961-973.
- Antonsson B., Montessuit S., Sanchez B., and Martinou J. C. (2001) Bax is present as a high molecular weight oligomer/complex in the mitochondrial membrane of apoptotic cells. *J Biol Chem* **276**, 11615-11623.
- Araujo D. M. and Hilt D. C. (1997) Glial cell line-derived neurotrophic factor attenuates the excitotoxin- induced behavioral and neurochemical deficits in a rodent model of Huntington's disease. *Neuroscience* **81**, 1099-1110.
- Araujo D. M. and Hilt D. C. (1998) Glial cell line-derived neurotrophic factor attenuates the locomotor hypofunction and striatonigral neurochemical deficits induced by chronic systemic administration of the mitochondrial toxin 3- nitropropionic acid. *Neuroscience* **82**, 117-127.
- Arenas E. and Persson H. (1994) Neurotrophin-3 prevents the death of adult central noradrenergic neurons in vivo. *Nature* **367**, 368-371.
- Arning L., Kraus P. H., Valentin S., Saft C., Andrich J., and Epplen J. T. (2005) NR2A and NR2B receptor gene variations modify age at onset in Huntington disease. *Neurogenetics* **6**, 25-28.
- Arnoult D., Parone P., Martinou J. C., Antonsson B., Estaquier J., and Ameisen J. C. (2002) Mitochondrial release of apoptosis-inducing factor occurs downstream of cytochrome c release in response to several proapoptotic stimuli. *J Cell Biol* **159**, 923-929.
- Atwal J. K., Massie B., Miller F. D., and Kaplan D. R. (2000) The TrkB-Shc site signals neuronal survival and local axon growth via MEK and P13-kinase. *Neuron* **27**, 265-277.
- 
- B**
- Baker S. A., Stanford L. E., Brown R. E., and Hagg T. (2005) Maturation but not survival of dopaminergic nigrostriatal neurons is affected in developing and aging BDNF-deficient mice. *Brain Res* **1039**, 177-188.
- Baloh R. H., Tansey M. G., Golden J. P., Creedon D. J., Heuckeroth R. O., Keck C. L., Zimonjic D. B., Popescu N. C., Johnson E. M. J., and Milbrandt J. (1997) TrnR2, a novel receptor that mediates neurturin and GDNF signaling through Ret. *Neuron* **18**, 793-802.
- Baloh R. H., Tansey M. G., Lampe P. A., Fahrner T. J., Enomoto H., Simburger K. S., Leitner M. L., Araki T., Johnson E. M. J., and Milbrandt J. (1998a) Artemin, a novel

## **Bibliografía**

---

member of the GDNF ligand family, supports peripheral and central neurons and signals through the GFRalpha3-RET receptor complex. *Neuron* **21**, 1291-1302.

Baloh R. H., Gorodinsky A., Golden J. P., Tansey M. G., Keck C. L., Popescu N. C., Johnson E. M. J., and Milbrandt J. (1998b) GFRalpha3 is an orphan member of the GDNF/neurturin/persephin receptor family. *Proc Natl Acad Sci U S A* **95**, 5801-5806.

Baloh R. H., Enomoto H., Johnson E. M. J., and Milbrandt J. (2000) The GDNF family ligands and receptors - implications for neural development. *Curr Opin Neurobiol* **10**, 103-110.

Bar-Peled O., Knudson M., Korsmeyer S. J., and Rothstein J. D. (1999) Motor neuron degeneration is attenuated in bax-deficient neurons in vitro. *J Neurosci Res* **55**, 542-556.

Barbacid M. (1994) The Trk family of neurotrophin receptors. *J Neurobiol* **25**, 1386-1403.

Barde Y. A., Edgar D., and Thoenen H. (1982) Purification of a new neurotrophic factor from mammalian brain. *EMBO J* **1**, 549-553.

Beal M. F., Kowall N. W., Ellison D. W., Mazurek M. F., Swartz K. J., and Martin J. B. (1986) Replication of the neurochemical characteristics of Huntington's disease by quinolinic acid. *Nature* **321**, 168-171.

Beal M. F., Brouillet E., Jenkins B. G., Ferrante R. J., Kowall N. W., Miller J. M., Storey E., Srivastava R., Rosen B. R., and Hyman B. T. (1993) Neurochemical and histologic characterization of striatal excitotoxic lesions produced by the mitochondrial toxin 3-nitropropionic acid. *J Neurosci* **13**, 4181-4192.

Beal M. F. (2000) Energetics in the pathogenesis of neurodegenerative diseases. *Trends Neurosci* **23**, 298-304.

Beck K. D., Valverde J., Alexi T., Poulsen K., Moffat B., Vandlen R. A., Rosenthal A., and Hefti F. (1995) Mesencephalic dopaminergic neurons protected by GDNF from axotomy-induced degeneration in the adult brain. *Nature* **373**, 339-341.

Benedetti M., Levi A., and Chao M. V. (1993) Differential expression of nerve growth factor receptors leads to altered binding affinity and neurotrophin responsiveness. *Proc Natl Acad Sci U S A* **90**, 7859-7863.

Bengtsson H., Soderstrom S., Kylberg A., Charette M. F., and Ebendal T. (1998) Potentiating interactions between morphogenetic protein and neurotrophic factors in developing neurons. *J Neurosci Res* **53**, 559-568.

Benn S. C. and Woolf C. J. (2004) Adult neuron survival strategies--slamming on the brakes. *Nat Rev Neurosci* **5**, 686-700.

---

## Bibliografia

- Berkemeier L. R., Winslow J. W., Kaplan D. R., Nikolics K., Goeddel D. V., and Rosenthal A. (1991) Neurotrophin-5: a novel neurotrophic factor that activates trk and trkB. *Neuron* **7**, 857-866.
- Bernard V., Somogyi P., and Bolam J. P. (1997) Cellular, subcellular, and subsynaptic distribution of AMPA-type glutamate receptor subunits in the neostriatum of the rat. *J Neurosci* **17**, 819-833.
- Bhide P. G., Day M., Sapp E., Schwarz C., Sheth A., Kim J., Young A. B., Penney J., Golden J., Aronin N., and DiFiglia M. (1996) Expression of normal and mutant huntingtin in the developing brain. *J Neurosci* **16**, 5523-5535.
- Bibel M., Hoppe E., and Barde Y. A. (1999) Biochemical and functional interactions between the neurotrophin receptors trk and p75NTR. *EMBO J* **18**, 616-622.
- Bilak M. M., Shifrin D. A., Corse A. M., Bilak S. R., and Kuncl R. W. (1999) Neuroprotective utility and neurotrophic action of neurturin in postnatal motor neurons: comparison with GDNF and persephin. *Mol Cell Neurosci* **13**, 326-336.
- Bizat N., Hermel J. M., Humbert S., Jacquard C., Creminon C., Escartin C., Saudou F., Krajewski S., Hantraye P., and Brouillet E. (2003a) In vivo calpain/caspase cross-talk during 3-nitropropionic acid-induced striatal degeneration: implication of a calpain-mediated cleavage of active caspase-3. *J Biol Chem* **278**, 43245-43253.
- Bizat N., Hermel J. M., Boyer F., Jacquard C., Creminon C., Ouary S., Escartin C., Hantraye P., Krajewski S., and Brouillet E. (2003b) Calpain is a major cell death effector in selective striatal degeneration induced in vivo by 3-nitropropionate: implications for Huntington's disease. *J Neurosci* **23**, 5020-5030.
- Black R. A., Kronheim S. R., Merriam J. E., March C. J., and Hopp T. P. (1989) A pre-aspartate-specific protease from human leukocytes that cleaves pro-interleukin-1 beta. *J Biol Chem* **264**, 5323-5326.
- Boise L. H., Gonzalezgarcia M., Postema C. E., Ding L. Y., Lindsten T., Turka L. A., Mao X. H., Nunez G., and Thompson C. B. (1993) Bcl-X, A Bcl-2-Related Gene That Functions As A Dominant Regulator of Apoptotic Cell-Death. *Cell* **74**, 597-608.
- Bolam J. P., Wainer B. H., and Smith A. D. (1984) Characterization of cholinergic neurons in the rat neostriatum. A combination of choline acetyltransferase immunocytochemistry, Golgi-impregnation and electron microscopy. *Neuroscience* **12**, 711-718.
- Bolam J. P., Hanley J. J., Booth P. A., and Bevan M. D. (2000) Synaptic organisation of the basal ganglia. *J Anat* **196 ( Pt 4)**, 527-542.
- Bonfoco E., Krainc D., Ankarcrona M., Nicotera P., and Lipton S. A. (1995) Apoptosis and necrosis: two distinct events induced, respectively, by mild and intense insults with

## **Bibliografía**

---

- N-methyl-D-aspartate or nitric oxide/superoxide in cortical cell cultures. *Proc Natl Acad Sci U S A* **92**, 7162-7166.
- Bordelon Y. M., Mackenzie L., and Chesselet M. F. (1999) Morphology and compartmental location of cells exhibiting DNA damage after quinolinic acid injections into rat striatum. *J Comp Neurol* **412**, 38-50.
- Borsello T., Clarke P. G., Hirt L., Vercelli A., Repici M., Schorderet D. F., Bogousslavsky J., and Bonny C. (2003) A peptide inhibitor of c-Jun N-terminal kinase protects against excitotoxicity and cerebral ischemia. *Nat Med* **9**, 1180-1186.
- Bouillet P., Metcalf D., Huang D. C. S., Tarlinton D. M., Kay T. W. H., Kontgen F., Adams J. M., and Strasser A. (1999) Proapoptotic Bcl-2 relative bim required for certain apoptotic responses, leukocyte homeostasis, and to preclude autoimmunity. *Science* **286**, 1735-1738.
- Bouillet P., Zhang L. C., Huang D. C. S., Webb G. C., Bottema C. D. K., Shore P., Eyre H. J., Sutherland G. R., and Adams J. M. (2001) Gene structure, alternative splicing, and chromosomal localization of pro-apoptotic Bcl-2 relative Bim. *Mammalian Genome* **12**, 163-168.
- Bourque M. J. and Trudeau L. E. (2000) GDNF enhances the synaptic efficacy of dopaminergic neurons in culture. *Eur J Neurosci* **12**, 3172-3180.
- Bowenkamp K. E., Lapchak P. A., Hoffer B. J., Miller P. J., and Bickford P. C. (1997) Intracerebroventricular glial cell line-derived neurotrophic factor improves motor function and supports nigrostriatal dopamine neurons in bilaterally 6-hydroxydopamine lesioned rats. *Exp Neurol* **145**, 104-117.
- Brederlau A., Faigle R., Kaplan P., Odin P., and Funa K. (2002) Bone morphogenetic proteins but not growth differentiation factors induce dopaminergic differentiation in mesencephalic precursors. *Mol Cell Neurosci* **21**, 367-378.
- Brenner S. (1974) The genetics of *Caenorhabditis elegans*. *Genetics* **77**, 71-94.
- Bresjanac M. and Antauer G. (2000) Reactive astrocytes of the quinolinic acid-lesioned rat striatum express GFRalpha1 as well as GDNF in vivo. *Exp Neurol* **164**, 53-59.
- Brodski C., Schnurch H., and Dechant G. (2000) Neurotrophin-3 promotes the cholinergic differentiation of sympathetic neurons. *Proc Natl Acad Sci U S A* **97**, 9683-9688.
- Brouillet E., Hantraye P., Ferrante R. J., Dolan R., Leroy-Willig A., Kowall N. W., and Beal M. F. (1995) Chronic mitochondrial energy impairment produces selective striatal degeneration and abnormal choreiform movements in primates. *Proc Natl Acad Sci U S A* **92**, 7105-7109.

---

## Bibliografía

- Brown D. A. and London E. (1998) Functions of lipid rafts in biological membranes. *Annu Rev of Cell Dev Biol* **14**, 111-136.
- Browne S. E., Bowling A. C., MacGarvey U., Baik M. J., Berger S. C., Muqit M. M., Bird E. D., and Beal M. F. (1997) Oxidative damage and metabolic dysfunction in Huntington's disease: selective vulnerability of the basal ganglia. *Ann Neurol* **41**, 646-653.
- Brunet A., Bonni A., Zigmond M. J., Lin M. Z., Juo P., Hu L. S., Anderson M. J., Arden K. C., Blenis J., and Greenberg M. E. (1999) Akt promotes cell survival by phosphorylating and inhibiting a Forkhead transcription factor. *Cell* **96**, 857-868.
- Brunet A., Datta S. R., and Greenberg M. E. (2001) Transcription-dependent and -independent control of neuronal survival by the PI3K-Akt signaling pathway. *Curr Opin Neurobiol* **11**, 297-305.
- Brustovetsky T., Purl K., Young A., Shimizu K., and Dubinsky J. M. (2004) Dearth of glutamate transporters contributes to striatal excitotoxicity. *Exp Neurol* **189**, 222-230.
- Buj-Bello A., Adu J., Pinon L. G., Horton A., Thompson J., Rosenthal A., Chinchotru M., Buchman V. L., and Davies A. M. (1997) Neurturin responsiveness requires a GPI-linked receptor and the Ret receptor tyrosine kinase. *Nature* **387**, 721-724.
- Burazin T. C. and Gundlach A. L. (1999) Localization of GDNF/neurturin receptor (c-ret, GFRalpha-1 and alpha-2) mRNAs in postnatal rat brain: differential regional and temporal expression in hippocampus, cortex and cerebellum. *Brain Res Mol Brain Res* **73**, 151-171.
- Butterworth J., Yates C. M., and Reynolds G. P. (1985) Distribution of phosphate-activated glutaminase, succinic dehydrogenase, pyruvate dehydrogenase and gamma-glutamyl transpeptidase in post-mortem brain from Huntington's disease and agonal cases. *J Neurol Sci* **67**, 161-171.
- C**
- 
- Cacalano G., Farinas I., Wang L. C., Hagler K., Forgie A., Moore M., Armanini M., Phillips H., Ryan A. M., Reichardt L. F., Hynes M., Davies A., and Rosenthal A. (1998) GFRalpha1 is an essential receptor component for GDNF in the developing nervous system and kidney. *Neuron* **21**, 53-62.
- Calabresi P., Pisani A., Mercuri N. B., and Bernardi G. (1996) The corticostriatal projection: from synaptic plasticity to dysfunctions of the basal ganglia. *Trends Neurosci* **19**, 19-24.
- Caleo M., Menna E., Chierzi S., Cenni M. C., and Maffei L. (2000) Brain-derived neurotrophic factor is an anterograde survival factor in the rat visual system. *Curr Biol* **10**, 1155-1161.

## **Bibliografía**

---

- Canals J. M., Marco S., Checa N., Michels A., Perez-Navarro E., Arenas E., and Alberch J. (1998) Differential regulation of the expression of nerve growth factor, brain-derived neurotrophic factor, and neurotrophin-3 after excitotoxicity in a rat model of Huntington's disease. *Neurobiol Dis* **5**, 357-364.
- Canals J. M., Checa N., Marco S., Michels A., Perez-Navarro E., and Alberch J. (1999) The neurotrophin receptors trkA, trkB and trkC are differentially regulated after excitotoxic lesion in rat striatum. *Brain Res Mol Brain Res* **69**, 242-248.
- Canals J. M., Checa N., Marco S., Akerud P., Michels A., Perez-Navarro E., Tolosa E., Arenas E., and Alberch J. (2001) Expression of brain-derived neurotrophic factor in cortical neurons is regulated by striatal target area. *J Neurosci* **21**, 117-124.
- Cantrell D. A. (2001) Phosphoinositide 3-kinase signalling pathways. *J Cell Sci* **114**, 1439-1445.
- Canudas A. M., Pezzi S., Canals J. M., Pallas M., and Alberch J. (2005) Endogenous brain-derived neurotrophic factor protects dopaminergic nigral neurons against transneuronal degeneration induced by striatal excitotoxic injury. *Brain Res Mol Brain Res* **134**, 147-154.
- Cardone M. H., Roy N., Stennicke H. R., Salvesen G. S., Franke T. F., Stanbridge E., Frisch S., and Reed J. C. (1998) Regulation of cell death protease caspase-9 by phosphorylation. *Science* **282**, 1318-1321.
- Carmillo P., Dago L., Day E. S., Worley D. S., Rossomando A., Walus L., Orozco O., Buckley C., Miller S., Tse A., Cate R. L., Rosenblad C., Sah D. W. Y., Gronborg M., and Whitty A. (2005) Glial cell line-derived neurotrophic factor (GDNF) receptor alpha-1 (GFR alpha-1) is highly selective for GDNF versus artemin. *Biochemistry* **44**, 2545-2554.
- Casaccia-Bonelli P., Kong H., and Chao M. V. (1998) Neurotrophins: the biological paradox of survival factors eliciting apoptosis. *Cell Death Differ* **5**, 357-364.
- Casarosa S., Fode C., and Guillemot F. (1999) Mash1 regulates neurogenesis in the ventral telencephalon. *Development* **126**, 525-534.
- Castellani V. and Bolz J. (1999) Opposing roles for neurotrophin-3 in targeting and collateral formation of distinct sets of developing cortical neurons. *Development* **126**, 3335-3345.
- Cavanaugh J. E., Ham J., Hetman M., Poser S., Yan C., and Xia Z. (2001) Differential regulation of mitogen-activated protein kinases ERK1/2 and ERK5 by neurotrophins, neuronal activity, and cAMP in neurons. *J Neurosci* **21**, 434-443.
- Celeste A. J., Iannazzi J. A., Taylor R. C., Hewick R. M., Rosen V., Wang E. A., and Wozney J. M. (1990) Identification of transforming growth factor beta family members present in bone-inductive protein purified from bovine bone. *Proc Natl Acad Sci U S A* **87**, 9843-9847.

---

## Bibliografía

- Celio M. R. (1990) Calbindin-D-28K and Parvalbumin in the Rat Nervous-System. *Neuroscience* **35**, 375-475.
- Chai J., Du C., Wu J. W., Kyin S., Wang X., and Shi Y. (2000) Structural and biochemical basis of apoptotic activation by Smac/DIABLO. *Nature* **406**, 855-862.
- Chai J., Shiozaki E., Srinivasula S. M., Wu Q., Datta P., Alnemri E. S., and Shi Y. (2001) Structural basis of caspase-7 inhibition by XIAP. *Cell* **104**, 769-780.
- Chaib-Oukadour I., Gil C., and Aguilera J. (2004) The C-terminal domain of the heavy chain of tetanus toxin rescues cerebellar granule neurones from apoptotic death: involvement of phosphatidylinositol 3-kinase and mitogen-activated protein kinase pathways. *J Neurochem* **90**, 1227-1236.
- Chalecka-Franaszek E. and Chuang D. M. (1999) Lithium activates the serine/threonine kinase Akt-1 and suppresses glutamate-induced inhibition of Akt-1 activity in neurons. *Proc Natl Acad Sci U S A* **96**, 8745-8750.
- Chang C. F., Lin S. Z., Chiang Y. H., Morales M., Chou J., Lein P., Chen H. L., Hoffer B. J., and Wang Y. (2003) Intravenous administration of bone morphogenetic protein-7 after ischemia improves motor function in stroke rats. *Stroke* **34**, 558-564.
- Chang M. Y., Son H., Lee Y. S., and Lee S. H. (2003) Neurons and astrocytes secrete factors that cause stem cells to differentiate into neurons and astrocytes, respectively. *Mol Cell Neurosci* **23**, 414-426.
- Chao M., Casaccia-Bonelli P., Carter B., Chittka A., Kong H., and Yoon S. O. (1998) Neurotrophin receptors: mediators of life and death. *Brain Res Brain Res Rev* **26**, 295-301.
- Chao M. V., Bothwell M. A., Ross A. H., Koprowski H., Lanahan A. A., Buck C. R., and Sehgal A. (1986) Gene transfer and molecular cloning of the human NGF receptor. *Science* **232**, 518-521.
- Chao M. V. (2003) Neurotrophins and their receptors: a convergence point for many signalling pathways. *Nat Rev Neurosci* **4**, 299-309.
- Charytoniuk D. A., Traiffort E., Pinard E., Issertial O., Seylaz J., and Ruat M. (2000) Distribution of bone morphogenetic protein and bone morphogenetic protein receptor transcripts in the rodent nervous system and up-regulation of bone morphogenetic protein receptor type II in hippocampal dentate gyrus in a rat model of global cerebral ischemia [In Process Citation]. *Neuroscience* **100**, 33-43.
- Checa N., Canals J. M., and Alberch J. (2000) Developmental regulation of BDNF and NT-3 expression by quinolinic acid in the striatum and its main connections. *Exp Neurol* **165**, 118-124.

## **Bibliografía**

---

- Checa N., Canals J. M., Gratacos E., and Alberch J. (2001) TrkB and TrkC Are Differentially Regulated by Excitotoxicity during Development of the Basal Ganglia. *Exp Neurol* **172**, 282-292.
- Chen K. S., Nishimura M. C., Armanini M. P., Crowley C., Spencer S. D., and Phillips H. S. (1997) Disruption of a single allele of the nerve growth factor gene results in atrophy of basal forebrain cholinergic neurons and memory deficits. *J Neurosci* **17**, 7288-7296.
- Chen Q. and Reiner A. (1996) Cellular distribution of the NMDA receptor NR2A/2B subunits in the rat striatum. *Brain Res* **743**, 346-352.
- Cheng B., Goodman Y., Begley J. G., and Mattson M. P. (1994) Neurotrophin-4/5 protects hippocampal and cortical neurons against energy deprivation- and excitatory amino acid-induced injury. *Brain Res* **650**, 331-335.
- Cheng E. H. Y. A., Wei M. C., Weiler S., Flavell R. A., Mak T. W., Lindsten T., and Korsmeyer S. J. (2001) BCL-2, BCL-X-L sequester BH3 domain-only molecules preventing BAX- and BAK-mediated mitochondrial apoptosis. *Molecular Cell* **8**, 705-711.
- Cheng F. C., Ni D. R., Wu M. C., Kuo J. S., and Chia L. G. (1998) Glial cell line-derived neurotrophic factor protects against 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP)-induced neurotoxicity in C57BL/6 mice. *Neurosci Lett* **252**, 87-90.
- Cheung E. C. and Slack R. S. (2004) Emerging role for ERK as a key regulator of neuronal apoptosis. *Sci STKE* **2004**, E45.
- Chittenden T., Flemington C., Houghton A. B., Ebb R. G., Gallo G. J., Elangovan B., Chinnadurai G., and Lutz R. J. (1995) A conserved domain in Bak, distinct from BH1 and BH2, mediates cell death and protein binding functions. *EMBO J* **14**, 5589-5596.
- Cho J., Yarygina O., Oo T. F., Kholodilov N. G., and Burke R. E. (2004) Glial cell line-derived neurotrophic factor receptor GFRalpha1 is expressed in the rat striatum during postnatal development. *Brain Res Mol Brain Res* **127**, 96-104.
- Cho K. W. Y. and Blitz I. L. (1998) BMPs, Smads and metalloproteases: extracellular and intracellular modes of negative regulation. *Curr Opin in Genet Dev* **8**, 443-449.
- Choi D. W. (1988) Glutamate neurotoxicity and diseases of the nervous system. *Neuron* **1**, 623-634.
- Choi S. S., Park I. C., Yun J. W., Sung Y. C., Hong S. I., and Shin H. S. (1995) A novel Bcl-2 related gene, Bfl-1, is overexpressed in stomach cancer and preferentially expressed in bone marrow. *Oncogene* **11**, 1693-1698.
- Chong Z. Z., Lin S. H., Kang J. Q., and Maiese K. (2003) Erythropoietin prevents early and late neuronal demise through modulation of Akt1 and induction of caspase 1, 3, and 8. *J Neurosci Res* **71**, 659-669.

---

## Bibliografía

- Christiansen J. H., Coles E. G., and Wilkinson D. G. (2000) Molecular control of neural crest formation, migration and differentiation. *Curr Opin Cell Biol* **12**, 719-724.
- Cicchetti F., Prensa L., Wu Y., and Parent A. (2000) Chemical anatomy of striatal interneurons in normal individuals and in patients with Huntington's disease. *Brain Res Brain Res Rev* **34**, 80-101.
- Cohen-Cory S., Dreyfus C. F., and Black I. B. (1991) NGF and excitatory neurotransmitters regulate survival and morphogenesis of cultured cerebellar Purkinje cells. *J Neurosci* **11**, 462-471.
- Connor B. and Dragunow M. (1998) The role of neuronal growth factors in neurodegenerative disorders of the human brain. *Brain Res Brain Res Rev* **27**, 1-39.
- Connor B. (2001) Adenoviral vector-mediated delivery of glial cell line-derived neurotrophic factor provides neuroprotection in the aged parkinsonian rat. *Clin Exp Pharmacol Physiol* **28**, 896-900.
- Conover J. C., Erickson J. T., Katz D. M., Bianchi L. M., Poueymirou W. T., McClain J., Pan L., Helgren M., Ip N. Y., and Boland P. (1995) Neuronal deficits, not involving motor neurons, in mice lacking BDNF and/or NT4. *Nature* **375**, 235-238.
- Conradt B. and Horvitz H. R. (1998) The *C. elegans* protein EGL-1 is required for programmed cell death and interacts with the Bcl-2-like protein CED-9. *Cell* **93**, 519-529.
- Cory S. and Adams J. M. (2002) The Bcl2 family: regulators of the cellular life-or-death switch. *Nat Rev Cancer* **2**, 647-656.
- Couplier M. and Ibanez C. F. (2004) Retrograde propagation of GDNF-mediated signals in sympathetic neurons. *Mol Cell Neurosci* **27**, 132-139.
- Cox S., Harvey B. K., Sanchez J. F., Wang J. Y., and Wang Y. (2004) Mediation of BMP7 neuroprotection by MAPK and PKC IN rat primary cortical cultures. *Brain Res* **1010**, 55-61.
- Coyle J. T. and Schwarcz R. (1976) Lesion of striatal neurones with kainic acid provides a model for Huntington's chorea. *Nature* **263**, 244-246.
- Creedon D. J., Tansey M. G., Baloh R. H., Osborne P. A., Lampe P. A., Fahrner T. J., Heuckeroth R. O., Milbrandt J., and Johnson E. M., Jr. (1997) Neurturin shares receptors and signal transduction pathways with glial cell line-derived neurotrophic factor in sympathetic neurons. *Proc Natl Acad Sci U S A* **94**, 7018-7023.
- Crosthwaite A. J., Valli H., and Williams R. J. (2004) Inhibiting Src family tyrosine kinase activity blocks glutamate signalling to ERK1/2 and Akt/PKB but not JNK in cultured striatal neurones. *J Neurochem* **88**, 1127-1139.

## **Bibliografía**

---

Crowley C., Spencer S. D., Nishimura M. C., Chen K. S., Pitts-Meek S., Armanini M. P., Ling L. H., MacMahon S. B., Shelton D. L., and Levinson A. D. (1994) Mice lacking nerve growth factor display perinatal loss of sensory and sympathetic neurons yet develop basal forebrain cholinergic neurons. *Cell* **76**, 1001-1011.

Cryns V. and Yuan J. (1998) Proteases to die for. *Genes Dev* **12**, 1551-1570.

Cudkowicz M. and Kowall N. W. (1990) Degeneration of pyramidal projection neurons in Huntington's disease cortex. *Ann Neurol* **27**, 200-204.

## **D**

---

Dahlstrand J., Lardelli M., and Lendahl U. (1995) Nestin Messenger-Rna Expression Correlates with the Central-Nervous-System Progenitor-Cell State in Many, But Not All, Regions of Developing Central-Nervous-System. *Dev Brain Res* **84**, 109-129.

Danial N. N. and Korsmeyer S. J. (2004) Cell death: critical control points. *Cell* **116**, 205-219.

Dargusch R., Piasecki D., Tan S., Liu Y., and Schubert D. (2001) The role of Bax in glutamate-induced nerve cell death. *J Neurochem* **76**, 295-301.

Datta S. R., Dudek H., Tao X., Masters S., Fu H., Gotoh Y., and Greenberg M. E. (1997) Akt phosphorylation of BAD couples survival signals to the cell-intrinsic death machinery. *Cell* **91**, 231-241.

Datta S. R., Brunet A., and Greenberg M. E. (1999) Cellular survival: a play in three Akts. *Genes Dev* **13**, 2905-2927.

Daugas E., Nochy D., Ravagnan L., Loeffler M., Susin S. A., Zamzami N., and Kroemer G. (2000) Apoptosis-inducing factor (AIF): a ubiquitous mitochondrial oxidoreductase involved in apoptosis. *FEBS Lett* **476**, 118-123.

Davies A. M., Thoenen H., and Barde Y. A. (1986) Different factors from the central nervous system and periphery regulate the survival of sensory neurones. *Nature* **319**, 497-499.

Davies A. M. (1996) Paracrine and autocrine actions of neurotrophic factors. *Neurochem Res* **21**, 749-753.

Davies A. M. (2000) Neurotrophins: more to NGF than just survival. *Curr Biol* **10**, R374-R376.

Davies A. M. (2003) Regulation of neuronal survival and death by extracellular signals during development. *EMBO J* **22**, 2537-2545.

---

## Bibliografía

- Davies S. W. and Beardsall K. (1992) Nerve growth factor selectively prevents excitotoxin induced degeneration of striatal cholinergic neurones. *Neurosci Lett* **140**, 161-164.
- Davis R. J. (1995) Transcriptional regulation by MAP kinases. *Mol Reprod Dev* **42**, 459-467.
- Davis R. J. (2000) Signal transduction by the JNK group of MAP kinases. *Cell* **103**, 239-252.
- Dawbarn D., De Quidt M. E., and Emson P. C. (1985) Survival of basal ganglia neuropeptide Y-somatostatin neurones in Huntington's disease. *Brain Res* **340**, 251-260.
- Dawson T. M., Bredt D. S., Fotuhi M., Hwang P. M., and Snyder S. H. (1991) Nitric oxide synthase and neuronal NADPH diaphorase are identical in brain and peripheral tissues. *Proc Natl Acad Sci U S A* **88**, 7797-7801.
- De Rooij K. E., Dorsman J. C., Smoor M. A., Den Dunnen J. T., and Van Ommen G. J. (1996) Subcellular localization of the Huntington's disease gene product in cell lines by immunofluorescence and biochemical subcellular fractionation. *Hum Mol Genet* **5**, 1093-1099.
- de Bernardo. S., Canals S., Casarejos M. J., Solano R. M., Menendez J., and Mena M. A. (2004) Role of extracellular signal-regulated protein kinase in neuronal cell death induced by glutathione depletion in neuron/glia mesencephalic cultures. *J Neurochem* **91**, 667-682.
- Dechant G., Rodriguez-Tebas A., Kolbeck R., and Barde Y. A. (1993) Specific high-affinity receptors for neurotrophin-3 on sympathetic neurons. *J Neurosci* **13**, 2610-2616.
- Deckwerth T. L., Elliott J. L., Knudson C. M., Johnson E. M., Snider W. D., and Korsmeyer S. J. (1996) BAX is required for neuronal death after trophic factor deprivation and during development. *Neuron* **17**, 401-411.
- del Peso L., Gonzalez-Garcia M., Page C., Herrera R., and Nunez G. (1997) Interleukin-3-induced phosphorylation of BAD through the protein kinase Akt. *Science* **278**, 687-689.
- Delcroix J. D., Valletta J. S., Wu C., Hunt S. J., Kowal A. S., and Mobley W. C. (2003) NGF signaling in sensory neurons: evidence that early endosomes carry NGF retrograde signals. *Neuron* **39**, 69-84.
- Deng Y., Lin C., Zheng J., Fu M., Liang X., Chen J., Xiao P., and Wu M. (2000) Overexpression of Bcl-2 partly inhibits apoptosis of human cervical cancer SiHa cells induced by arsenic trioxide. *Chin Med J (Engl)* **113**, 84-88.
- Deng Y., Lin Y., and Wu X. (2002) TRAIL-induced apoptosis requires Bax-dependent mitochondrial release of Smac/DIABLO. *Genes Dev* **16**, 33-45.

## **Bibliografia**

---

- Deng Y., Ren X., Yang L., Lin Y., and Wu X. (2003) A JNK-dependent pathway is required for TNFalpha-induced apoptosis. *Cell* **115**, 61-70.
- Desagher S., Osen-Sand A., Nichols A., Eskes R., Montessuit S., Lauper S., Maundrell K., Antonsson B., and Martinou J. C. (1999) Bid-induced conformational change of Bax is responsible for mitochondrial cytochrome c release during apoptosis. *J Cell Biol* **144**, 891-901.
- Deveraux Q. L., Takahashi R., Salvesen G. S., and Reed J. C. (1997) X-linked IAP is a direct inhibitor of cell-death proteases. *Nature* **388**, 300-304.
- DiFiglia M., Sapp E., Chase K., Schwarz C., Meloni A., Young C., Martin E., Vonsattel J. P., Carraway R., and Reeves S. A. (1995) Huntingtin is a cytoplasmic protein associated with vesicles in human and rat brain neurons. *Neuron* **14**, 1075-1081.
- DiFiglia M., Sapp E., Chase K. O., Davies S. W., Bates G. P., Vonsattel J. P., and Aronin N. (1997) Aggregation of huntingtin in neuronal intranuclear inclusions and dystrophic neurites in brain. *Science* **277**, 1990-1993.
- Dijkers P. F., Medema R. H., Lammers J. W. J., Koenderman L., and Coffer P. J. (2000) Expression of the pro-apoptotic Bcl-2 family member Bim is regulated by the forkhead transcription factor FKHR-L1. *Current Biology* **10**, 1201-1204.
- Dijkhuizen P. A. and Ghosh A. (2005) BDNF regulates primary dendrite formation in cortical neurons via the PI3-kinase and MAP kinase signaling pathways. *J Neurobiol* **62**, 278-288.
- Dolcet X., Egea J., Soler R. M., Martin-Zanca D., and Comella J. X. (1999) Activation of phosphatidylinositol 3-kinase, but not extracellular-regulated kinases, is necessary to mediate brain-derived neurotrophic factor-induced motoneuron survival. *J Neurochem* **73**, 521-531.
- Downward J. (1998) Ras signalling and apoptosis. *Curr Opin Genet Dev* **8**, 49-54.
- Dudley A. T., Lyons K. M., and Robertson E. J. (1995) A Requirement for Bone Morphogenetic Protein-7 During Development of the Mammalian Kidney and Eye. *Genes & Development* **9**, 2795-2807.
- Duyao M. P., Auerbach A. B., Ryan A., Persichetti F., Barnes G. T., McNeil S. M., Ge P., Vonsattel J. P., Gusella J. F., and Joyner A. L. (1995) Inactivation of the mouse Huntington's disease gene homolog Hdh. *Science* **269**, 407-410.
- 
- E**
- Ebendal T., Tomac A., Hoffer B. J., and Olson L. (1995) Glial cell line-derived neurotrophic factor stimulates fiber formation and survival in cultured neurons from peripheral autonomic ganglia. *J Neurosci Res* **40**, 276-284.

---

## Bibliografía

- Ebendal T., Bengtsson H., and Soderstrom S. (1998) Bone morphogenetic proteins and their receptors: potential functions in the brain. *J Neurosci Res* **51**, 139-146.
- Ebisawa T., Fukuchi M., Murakami G., Chiba T., Tanaka K., Imamura T., and Miyazono K. (2001) Smurfl interacts with transforming growth factor-beta type I receptor through Smad7 and induces receptor degradation. *J Biol Chem* **276**, 12477-12480.
- Eide F. F., Vining E. R., Eide B. L., Zang K., Wang X. Y., and Reichardt L. F. (1996) Naturally occurring truncated trkB receptors have dominant inhibitory effects on brain-derived neurotrophic factor signaling. *J Neurosci* **16**, 3123-3129.
- Engqvist-Goldstein A. E., Kessels M. M., Chopra V. S., Hayden M. R., and Drubin D. G. (1999) An actin-binding protein of the Sla2/Huntingtin interacting protein 1 family is a novel component of clathrin-coated pits and vesicles. *J Cell Biol* **147**, 1503-1518.
- Enokido Y., de Sauvage F., Hongo J. A., Ninkina N., Rosenthal A., Buchman V. L., and Davies A. M. (1998) GFR alpha-4 and the tyrosine kinase Ret form a functional receptor complex for persephin. *Curr Biol* **8**, 1019-1022.
- Enomoto H., Araki T., Jackman A., Heuckeroth R. O., Snider W. D., Johnson E. M. J., and Milbrandt J. (1998) GFR alpha1-deficient mice have deficits in the enteric nervous system and kidneys. *Neuron* **21**, 317-324.
- Epa W. R., Markovska K., and Barrett G. L. (2004) The p75 neurotrophin receptor enhances TrkA signalling by binding to Shc and augmenting its phosphorylation. *J Neurochem* **89**, 344-353.
- Ernfors P., Ibanez C. F., Ebendal T., Olson L., and Persson H. (1990) Molecular cloning and neurotrophic activities of a protein with structural similarities to nerve growth factor: developmental and topographical expression in the brain. *Proc Natl Acad Sci U S A* **87**, 5454-5458.
- Ernfors P., Lee K. F., and Jaenisch R. (1994a) Mice lacking brain-derived neurotrophic factor develop with sensory deficits. *Nature* **368**, 147-150.
- Ernfors P., Lee K. F., Kucera J., and Jaenisch R. (1994b) Lack of neurotrophin-3 leads to deficiencies in the peripheral nervous system and loss of limb proprioceptive afferents. *Cell* **77**, 503-512.
- Espejo M., Cutillas B., Ventura F., and Ambrosio S. (1999) Exposure of foetal mesencephalic cells to bone morphogenetic protein-2 enhances the survival of dopaminergic neurones in rat striatal grafts. *Neurosci Lett* **275**, 13-16.
- Esposti M. D. (2002) The roles of Bid. *Apoptosis* **7**, 433-440.
- Esquenazi S., Monnerie H., Kaplan P., and Le R. P. (2002) BMP-7 and excess glutamate: opposing effects on dendrite growth from cerebral cortical neurons in vitro. *Exp Neurol* **176**, 41-54.

## **Bibliografía**

---

### **F**

---

- Facci L., Stevens D. A., and Skaper S. D. (2003) Glycogen synthase kinase-3 inhibitors protect central neurons against excitotoxicity. *Neuroreport* **14**, 1467-1470.
- Fan H., Favero M., and Vogel M. W. (2001) Elimination of Bax expression in mice increases cerebellar purkinje cell numbers but not the number of granule cells. *J Comp Neurol* **436**, 82-91.
- Fan M., Goodwin M., Vu T., Brantley-Finley C., Gaarde W. A., and Chambers T. C. (2000) Vinblastine-induced phosphorylation of Bcl-2 and Bcl-XL is mediated by JNK and occurs in parallel with inactivation of the Raf-1/MEK/ERK cascade. *J Biol Chem* **275**, 29980-29985.
- Farinas I., Jones K. R., Backus C., Wang X. Y., and Reichardt L. F. (1994) Severe sensory and sympathetic deficits in mice lacking neurotrophin-3. *Nature* **369**, 658-661.
- Farkas L. M., Suter-Cazzolara C., and Unsicker K. (1997) GDNF induces the calretinin phenotype in cultures of embryonic striatal neurons. *J Neurosci Res* **50**, 361-372.
- Farkas L. M., Jaszai J., Unsicker K., and Kriegstein K. (1999) Characterization of bone morphogenetic protein family members as neurotrophic factors for cultured sensory neurons. *Neuroscience* **92**, 227-235.
- Fawcett J. P., Alonso-Vanegas M. A., Morris S. J., Miller F. D., Sadikot A. F., and Murphy R. A. (2000) Evidence that brain-derived neurotrophic factor from presynaptic nerve terminals regulates the phenotype of calbindin-containing neurons in the lateral septum. *J Neurosci* **20**, 274-282.
- Feng L., Wang C. Y., Jiang H., Oho C., Dugich-Djordjevic M., Mei L., and Lu B. (1999) Differential signaling of glial cell line-derived neurotrophic factor and brain-derived neurotrophic factor in cultured ventral mesencephalic neurons. *Neuroscience* **93**, 265-273.
- Ferrante R. J., Kowall N. W., Beal M. F., Richardson E. P. J., Bird E. D., and Martin J. B. (1985) Selective sparing of a class of striatal neurons in Huntington's disease. *Science* **230**, 561-563.
- Ferrer I., Martin F., Serrano T., Reiriz J., Perez-Navarro E., Alberch J., Macaya A., and Planas A. M. (1995) Both apoptosis and necrosis occur following intrastratal administration of excitotoxins. *Acta Neuropathol* **90**, 504-510.
- Ferrer I., Goutan E., Marin C., Rey M. J., and Ribalta T. (2000a) Brain-derived neurotrophic factor in Huntington disease. *Brain Res* **866**, 257-261.
- Ferrer I., Blanco R., Cutillas B., and Ambrosio S. (2000b) Fas and Fas-L expression in Huntington's disease and Parkinson's disease. *Neuropathol Appl Neurobiol* **26**, 424-433.

---

## Bibliografía

- Ferrer I., Blanco R., and Carmona M. (2001) Differential expression of active, phosphorylation-dependent MAP kinases, MAPK/ERK, SAPK/JNK and p38, and specific transcription factor substrates following quinolinic acid excitotoxicity in the rat. *Brain Res Mol Brain Res* **94**, 48-58.
- Ferrer I., Blanco R., Carmona M., Puig B., Dominguez I., and Vinals F. (2002) Active, phosphorylation-dependent MAP kinases, MAPK/ERK, SAPK/JNK and p38, and specific transcription factor substrates are differentially expressed following systemic administration of kainic acid to the adult rat. *Acta Neuropathol (Berl)* **103**, 391-407.
- Fishell G. and van der Kooy D. (1991) Pattern formation in the striatum: neurons with early projections to the substantia nigra survive the cell death period. *J Comp Neurol* **312**, 33-42.
- Foehr E. D., Lin X., O'Mahony A., Gelezunas R., Bradshaw R. A., and Greene W. C. (2000) NF-kappa B signaling promotes both cell survival and neurite process formation in nerve growth factor-stimulated PC12 cells. *J Neurosci* **20**, 7556-7563.
- Franke B., Bayatti N., and Engele J. (2000) Neurotrophins require distinct extracellular signals to promote the survival of CNS neurons in vitro. *Exp Neurol* **165**, 125-135.
- Friedman W. J., Ernfors P., and Persson H. (1991) Transient and persistent expression of NT-3/HDNF mRNA in the rat brain during postnatal development. *J Neurosci* **11**, 1577-1584.
- Friedman W. J., Ibanez C. F., Hallbook F., Persson H., Cain L. D., Dreyfus C. F., and Black I. B. (1993) Differential actions of neurotrophins in the locus coeruleus and basal forebrain. *Exp Neurol* **119**, 72-78.
- Friedman W. J. and Greene L. A. (1999) Neurotrophin signaling via Trks and p75. *Exp Cell Res* **253**, 131-142.
- Friguls B., Petegnief V., Justicia C., Pallas M., and Planas A. M. (2002) Activation of ERK and Akt signaling in focal cerebral ischemia: modulation by TGF-alpha and involvement of NMDA receptor. *Neurobiol Dis* **11**, 443-456.
- Frim D. M., Uhler T. A., Galpern W. R., Beal M. F., Breakefield X. O., and Isacson O. (1994) Implanted fibroblasts genetically engineered to produce brain-derived neurotrophic factor prevent 1-methyl-4-phenylpyridinium toxicity to dopaminergic neurons in the rat. *Proc Natl Acad Sci U S A* **91**, 5104-5108.
- Fujita H., Tanaka J., Toku K., Tateishi N., Suzuki Y., Matsuda S., Sakanaka M., and Maeda N. (1996) Effects of GM-CSF and ordinary supplements on the ramification of microglia in culture: a morphometrical study. *Glia* **18**, 269-281.
- Fuller G., Veitch K., Ho L. K., Cruise L., and Morris B. J. (2001) Activation of p44/p42 MAP kinase in striatal neurons via kainate receptors and PI3 kinase. *Brain Res Mol Brain Res* **89**, 126-132.

## **Bibliografía**

---

### **G**

---

- Galter D., Bottner M., Kriegstein K., Schomig E., and Unsicker K. (1999) Differential regulation of distinct phenotypic features of serotonergic neurons by bone morphogenetic proteins. *Eur J Neurosci* **11**, 2444-2452.
- Gao Y., Signore A. P., Yin W., Cao G., Yin X. M., Sun F., Luo Y., Graham S. H., and Chen J. (2005) Neuroprotection against focal ischemic brain injury by inhibition of c-Jun N-terminal kinase and attenuation of the mitochondrial apoptosis-signaling pathway. *J Cereb Blood Flow Metab* **25**, 694-712.
- Garcia M., Vanhoutte P., Pages C., Besson M. J., Brouillet E., and Caboche J. (2002) The mitochondrial toxin 3-nitropropionic acid induces striatal neurodegeneration via a c-Jun N-terminal kinase/c-Jun module. *J Neurosci* **22**, 2174-2184.
- Gash D. M., Zhang Z., Cass W. A., Ovadia A., Simmerman L., Martin D., Russell D., Collins F., Hoffer B. J., and Gerhardt G. A. (1995) Morphological and functional effects of intranigrally administered GDNF in normal rhesus monkeys. *J Comp Neurol* **363**, 345-358.
- Gauthier L. R., Charrin B. C., Borrell-Pages M., Dompierre J. P., Rangone H., Cordelieres F. P., De M. J., MacDonald M. E., Lessmann V., Humbert S., and Saudou F. (2004) Huntingtin controls neurotrophic support and survival of neurons by enhancing BDNF vesicular transport along microtubules. *Cell* **118**, 127-138.
- Gentry J. J., Barker P. A., and Carter B. D. (2004) The p75 neurotrophin receptor: multiple interactors and numerous functions. *Prog Brain Res* **146**, 25-39.
- Georgievska B., Kirik D., Rosenblad C., Lundberg C., and Bjorklund A. (2002) Neuroprotection in the rat Parkinson model by intrastratal GDNF gene transfer using a lentiviral vector. *Neuroreport* **13**, 75-82.
- Gerfen C. R. (1992) The neostriatal mosaic: multiple levels of compartmental organization. *Trends Neurosci* **15**, 133-139.
- Gerfen C. R., Miyachi S., Paletzki R., and Brown P. (2002) D1 dopamine receptor supersensitivity in the dopamine-depleted striatum results from a switch in the regulation of ERK1/2/MAP kinase. *J Neurosci* **22**, 5042-5054.
- Gervais F. G., Singaraja R., Xanthoudakis S., Gutekunst C. A., Leavitt B. R., Metzler M., Hackam A. S., Tam J., Vaillancourt J. P., Houtzager V., Rasper D. M., Roy S., Hayden M. R., and Nicholson D. W. (2002) Recruitment and activation of caspase-8 by the Huntingtin-interacting protein Hip-1 and a novel partner Hippi. *Nat Cell Biol* **4**, 95-105.
- Ghribi O., Herman M. M., Spaulding N. K., and Savory J. (2002) Lithium inhibits aluminum-induced apoptosis in rabbit hippocampus, by preventing cytochrome c translocation, Bcl-2 decrease, Bax elevation and caspase-3 activation. *J Neurochem* **82**, 137-145.

---

## Bibliografía

- Gibson L., Holmgreen S. P., Huang D. C. S., Bernand O., Copeland N. G., Jenkins N. A., Sutherland G. R., Baker E., Adams J. M., and Cory S. (1996) bcl-w, a novel member of the bcl-2 family, promotes cell survival. *Oncogene* **13**, 665-675.
- Gille H., Kortenjann M., Thomae O., Moomaw C., Slaughter C., Cobb M. H., and Shaw P. E. (1995) ERK phosphorylation potentiates Elk-1-mediated ternary complex formation and transactivation. *EMBO J* **14**, 951-962.
- Gines S., Ivanova E., Seong I. S., Saura C. A., and MacDonald M. E. (2003) Enhanced Akt signaling is an early pro-survival response that reflects N-methyl-D-aspartate receptor activation in Huntington's disease knock-in striatal cells. *J Biol Chem* **278**, 50514-50522.
- Glazner G. W., Mu X., and Springer J. E. (1998) Localization of glial cell line-derived neurotrophic factor receptor alpha and c-ret mRNA in rat central nervous system. *J Comp Neurol* **391**, 42-49.
- Glebova N. O. and Ginty D. D. (2004) Heterogeneous requirement of NGF for sympathetic target innervation in vivo. *J Neurosci* **24**, 743-751.
- Golden J. P., DeMaro J. A., Osborne P. A., Milbrandt J., and Johnson E. M. J. (1999) Expression of neurturin, GDNF, and GDNF family-receptor mRNA in the developing and mature mouse. *Exp Neurol* **158**, 504-528.
- Golden J. P., Milbrandt J., and Johnson E. M. (2003) Neurturin and persephin promote the survival of embryonic basal forebrain cholinergic neurons in vitro. *Exp Neurol* **184**, 447-455.
- Goldin M. and Segal M. (2003) Protein kinase C and ERK involvement in dendritic spine plasticity in cultured rodent hippocampal neurons. *Eur J Neurosci* **17**, 2529-2539.
- Gotz T., Kraushaar U., Geiger J., Lubke J., Berger T., and Jonas P. (1997) Functional properties of AMPA and NMDA receptors expressed in identified types of basal ganglia neurons. *J Neurosci* **17**, 204-215.
- Graham A., Francis-West P., Brickell P., and Lumsden A. (1994) The signalling molecule BMP4 mediates apoptosis in the rhombencephalic neural crest. *Nature* **372**, 684-686.
- Gratacos E., Checa N., and Alberch J. (2001a) Bone morphogenetic protein-2, but not bone morphogenetic protein-7, promotes dendritic growth and calbindin phenotype in cultured rat striatal neurons. *Neuroscience* **104**, 783-790.
- Gratacos E., Checa N., Perez-Navarro E., and Alberch J. (2001b) Brain-derived neurotrophic factor (BDNF) mediates bone morphogenetic protein-2 (BMP-2) effects on cultured striatal neurones. *J Neurochem* **79**, 747-755.

## **Bibliografía**

---

- Gratacos E., Perez-Navarro E., Tolosa E., Arenas E., and Alberch J. (2001c) Neuroprotection of striatal neurons against kainate excitotoxicity by neurotrophins and GDNF family members. *J Neurochem* **78**, 1287-1296.
- Graybiel A. M. and Ragsdale C. W. J. (1978) Histochemically distinct compartments in the striatum of human, monkeys, and cat demonstrated by acetylthiocholinesterase staining. *Proc Natl Acad Sci U S A* **75**, 5723-5726.
- Graybiel A. M. (1983) Compartmental organization of the mammalian striatum. *Prog Brain Res* **58**, 247-256.
- Graybiel A. M. (2000) The basal ganglia. *Curr Biol* **10**, R509-R511.
- Grewal S. S., York R. D., and Stork P. J. (1999) Extracellular-signal-regulated kinase signalling in neurons. *Curr Opin Neurobiol* **9**, 544-553.
- Griffiths G. J., Dubrez L., Morgan C. P., Jones N. A., Whitehouse J., Corfe B. M., Dive C., and Hickman J. A. (1999) Cell damage-induced conformational changes of the pro-apoptotic protein bak in vivo precede the onset of apoptosis. *J Cell Biol* **144**, 903-914.
- Gross A., Jockel J., Wei M. C., and Korsmeyer S. J. (1998) Enforced dimerization of BAX results in its translocation, mitochondrial dysfunction and apoptosis. *EMBO J* **17**, 3878-3885.
- Gross R. E., Mehler M. F., Mabie P. C., Zang Z., Santschi L., and Kessler J. A. (1996) Bone morphogenetic proteins promote astroglial lineage commitment by mammalian subventricular zone progenitor cells. *Neuron* **17**, 595-606.
- Guo X., Lin Y., Horbinski C., Drahushuk K. M., Kim I. J., Kaplan P. L., Lein P., Wang T., and Higgins D. (2001) Dendritic growth induced by BMP-7 requires Smad1 and proteasome activity. *J Neurobiol* **48**, 120-130.
- Gutekunst C. A., Levey A. I., Heilman C. J., Whaley W. L., Yi H., Nash N. R., Rees H. D., Madden J. J., and Hersch S. M. (1995) Identification and localization of huntingtin in brain and human lymphoblastoid cell lines with anti-fusion protein antibodies. *Proc Natl Acad Sci U S A* **92**, 8710-8714.
- Guyot M. C., Hantraye P., Dolan R., Palfi S., Maziere M., and Brouillet E. (1997) Quantifiable bradykinesia, gait abnormalities and Huntington's disease-like striatal lesions in rats chronically treated with 3-nitropropionic acid. *Neuroscience* **79**, 45-56.
- H**
- 
- Ha D. H., Robertson R. T., Ribak C. E., and Weiss J. H. (1996) Cultured basal forebrain cholinergic neurons in contact with cortical cells display synapses, enhanced morphological features, and decreased dependence on nerve growth factor. *J Comp Neurol* **373**, 451-465.

---

## Bibliografía

- Hagg T., Hagg F., Vahlsing H. L., Manthorpe M., and Varon S. (1989) Nerve Growth-Factor Effects on Cholinergic Neurons of Neostriatum and Nucleus Accumbens in the Adult-Rat. *Neuroscience* **30**, 95-103.
- Haldar S., Chintapalli J., and Croce C. M. (1996) Taxol induces bcl-2 phosphorylation and death of prostate cancer cells. *Cancer Res* **56**, 1253-1255.
- Hallbook F., Ibanez C. F., and Persson H. (1991) Evolutionary studies of the nerve growth factor family reveal a novel member abundantly expressed in Xenopus ovary. *Neuron* **6**, 845-858.
- Han B. H. and Holtzman D. M. (2000) BDNF protects the neonatal brain from hypoxic-ischemic injury in vivo via the ERK pathway. *J Neurosci* **20**, 5775-5781.
- Hanbury R., Ling Z. D., Wuu J., and Kordower J. H. (2003) GFAP knockout mice have increased levels of GDNF that protect striatal neurons from metabolic and excitotoxic insults. *J Comp Neurol* **461**, 307-316.
- Harada H., Quearry B., Ruiz-Vela A., and Korsmeyer S. J. (2004) Survival factor-induced extracellular signal-regulated kinase phosphorylates BIM, inhibiting its association with BAX and proapoptotic activity. *Proc Natl Acad Sci U S A* **101**, 15313-15317.
- Harlin H., Reffey S. B., Duckett C. S., Lindsten T., and Thompson C. B. (2001) Characterization of XIAP-deficient mice. *Mol Cell Biol* **21**, 3604-3608.
- Harris C. A. and Johnson E. M. (2001) BH3-only Bcl-2 family members are coordinately regulated by the JNK pathway and require Bax to induce apoptosis in neurons. *J Biol Chem* **276**, 37754-37760.
- Hartikka J. and Hefti F. (1988) Development of septal cholinergic neurons in culture: plating density and glial cells modulate effects of NGF on survival, fiber growth, and expression of transmitter-specific enzymes. *J Neurosci* **8**, 2967-2985.
- Harvey B. K., Mark A., Chou J., Chen G. J., Hoffer B. J., and Wang Y. (2004) Neurotrophic effects of bone morphogenetic protein-7 in a rat model of Parkinson's disease. *Brain Res* **1022**, 88-95.
- Hata A., Lo R. S., Wotton D., Lagna G., and Massague J. (1997) Mutations increasing autoinhibition inactivate tumour suppressors Smad2 and Smad4. *Nature* **388**, 82-87.
- Hattori A., Katayama M., Iwasaki S., Ishii K., Tsujimoto M., and Kohno M. (1999) Bone morphogenetic protein-2 promotes survival and differentiation of striatal GABAergic neurons in the absence of glial cell proliferation. *J Neurochem* **72**, 2264-2271.
- Hayashi H., Ishisaki A., and Imamura T. (2003) Smad mediates BMP-2-induced upregulation of FGF-evoked PC12 cell differentiation. *FEBS Lett* **536**, 30-34.

## **Bibliografía**

---

- Heldin C. H., Miyazono K., and ten Dijke P. (1997) TGF-beta signalling from cell membrane to nucleus through SMAD proteins. *Nature* **390**, 465-471.
- Hempstead B. L., Patil N., Thiel B., and Chao M. V. (1990) Deletion of cytoplasmic sequences of the nerve growth factor receptor leads to loss of high affinity ligand binding. *J Biol Chem* **265**, 9595-9598.
- Hempstead B. L., Martin-Zanca D., Kaplan D. R., Parada L. F., and Chao M. V. (1991) High-affinity NGF binding requires coexpression of the trk proto-oncogene and the low-affinity NGF receptor. *Nature* **350**, 678-683.
- Henderson C. E., Camu W., Mettling C., Gouin A., Poulsen K., Karihaloo M., Rullamas J., Evans T., McMahon S. B., and Armanini M. P. (1993) Neurotrophins promote motor neuron survival and are present in embryonic limb bud. *Nature* **363**, 266-270.
- Henderson C. E., Phillips H. S., Pollock R. A., Davies A. M., Lemeulle C., Armanini M., Simmons L., Moffet B., Vandlen R. A., and Simpson L. C. (1994) GDNF: a potent survival factor for motoneurons present in peripheral nerve and muscle. *Science* **266**, 1062-1064.
- Hengartner M. O. (2000) The biochemistry of apoptosis. *Nature* **407**, 770-776.
- Henry M. K., Lynch J. T., Eapen A. K., and Quelle F. W. (2001) DNA damage-induced cell-cycle arrest of hematopoietic cells is overridden by activation of the PI-3 kinase/Akt signaling pathway. *Blood* **98**, 834-841.
- Henshall D. C., Araki T., Schindler C. K., Lan J. Q., Tiekoter K. L., Taki W., and Simon R. P. (2002) Activation of Bcl-2-associated death protein and counter-response of Akt within cell populations during seizure-induced neuronal death. *J Neurosci* **22**, 8458-8465.
- Herkenham M. and Pert C. B. (1981) Mosaic distribution of opiate receptors, parafascicular projections and acetylcholinesterase in rat striatum. *Nature* **291**, 415-418.
- Hetman M., Kanning K., Cavanaugh J. E., and Xia Z. (1999) Neuroprotection by brain-derived neurotrophic factor is mediated by extracellular signal-regulated kinase and phosphatidylinositol 3-kinase. *J Biol Chem* **274**, 22569-22580.
- Hetman M., Cavanaugh J. E., Kimelman D., and Xia Z. (2000) Role of glycogen synthase kinase-3beta in neuronal apoptosis induced by trophic withdrawal. *J Neurosci* **20**, 2567-2574.
- Heuckeroth R. O., Enomoto H., Grider J. R., Golden J. P., Hanke J. A., Jackman A., Molliver D. C., Bardgett M. E., Snider W. D., Johnson E. M. J., and Milbrandt J. (1999) Gene targeting reveals a critical role for neurturin in the development and maintenance of enteric, sensory, and parasympathetic neurons. *Neuron* **22**, 253-263.
- Hickey M. A. and Chesselet M. F. (2003) The use of transgenic and knock-in mice to study Huntington's disease. *Cytogenet Genome Res* **100**, 276-286.

---

## Bibliografía

- Hock C. H., Heese K., Olivieri G., Hulette C. H., Rosenberg C., Nitsch R. M., and Otten U. (2000) Alterations in neurotrophins and neurotrophin receptors in Alzheimer's disease. *J Neural Transm Suppl* **59**, 171-174.
- Hodgson J. G., Agopyan N., Gutekunst C. A., Leavitt B. R., LePiane F., Singaraja R., Smith D. J., Bissada N., McCutcheon K., Nasir J., Jamot L., Li X. J., Stevens M. E., Rosemond E., Roder J. C., Phillips A. G., Rubin E. M., Hersch S. M., and Hayden M. R. (1999) A YAC mouse model for Huntington's disease with full-length mutant huntingtin, cytoplasmic toxicity, and selective striatal neurodegeneration. *Neuron* **23**, 181-192.
- Hofer M., Pagliusi S. R., Hohn A., Leibrock J., and Barde Y. A. (1990) Regional distribution of brain-derived neurotrophic factor mRNA in the adult mouse brain. *EMBO J* **9**, 2459-2464.
- Hoffer B. J., Hoffman A., Bowenkamp K., Huettl P., Hudson J., Martin D., Lin L. F., and Gerhardt G. A. (1994) Glial cell line-derived neurotrophic factor reverses toxin-induced injury to midbrain dopaminergic neurons in vivo. *Neurosci Lett* **182**, 107-111.
- Hogan B. L. (1996) Bone morphogenetic proteins in development. *Curr Opin Genet Dev* **6**, 432-438.
- Hohn A., Leibrock J., Bailey K., and Barde Y. A. (1990) Identification and characterization of a novel member of the nerve growth factor/brain-derived neurotrophic factor family. *Nature* **344**, 339-341.
- Holgado-Madruga M., Moscatello D. K., Emlet D. R., Dieterich R., and Wong A. J. (1997) Grb2-associated binder-1 mediates phosphatidylinositol 3-kinase activation and the promotion of cell survival by nerve growth factor. *Proc Natl Acad Sci U S A* **94**, 12419-12424.
- Hollmann M. and Heinemann S. (1994) Cloned glutamate receptors. *Annu Rev Neurosci* **17**, 31-108.
- Holm P. C., Akerud P., Wagner J., and Arenas E. (2002) Neurturin is a neuritogenic but not a survival factor for developing and adult central noradrenergic neurons. *J Neurochem* **81**, 1318-1327.
- Holsinger R. M., Schnarr J., Henry P., Castelo V. T., and Fahnestock M. (2000) Quantitation of BDNF mRNA in human parietal cortex by competitive reverse transcription-polymerase chain reaction: decreased levels in Alzheimer's disease. *Brain Res Mol Brain Res* **76**, 347-354.
- Holtzman D. M., Li Y., Parada L. F., Kinsman S., Chen C. K., Valletta J. S., Zhou J., Long J. B., and Mobley W. C. (1992) p140<sup>trk</sup> mRNA marks NGF-responsive forebrain neurons: evidence that trk gene expression is induced by NGF. *Neuron* **9**, 465-478.

## **Bibliografía**

---

Honma Y., Araki T., Gianino S., Bruce A., Heuckeroth R. O., Johnson E. M., and Milbrandt J. (2002) Artemin is a vascular-derived neurotropic factor for developing sympathetic neurons. *Neuron* **35**, 267-282.

Horger B. A., Nishimura M. C., Armanini M. P., Wang L. C., Poulsen K. T., Rosenblad C., Kirik D., Moffat B., Simmons L., Johnson E. J., Milbrandt J., Rosenthal A., Bjorklund A., Vandlen R. A., Hynes M. A., and Phillips H. S. (1998) Neurturin exerts potent actions on survival and function of midbrain dopaminergic neurons. *J Neurosci* **18**, 4929-4937.

Horvitz H. R. (2003) Worms, life, and death (Nobel lecture). *Chembiochem* **4**, 697-711.

Howe C. L., Valletta J. S., Rusnak A. S., and Mobley W. C. (2001) NGF signaling from clathrin-coated vesicles: evidence that signaling endosomes serve as a platform for the Ras-MAPK pathway. *Neuron* **32**, 801-814.

Hsu H., Xiong J., and Goeddel D. V. (1995) The TNF receptor 1-associated protein TRADD signals cell death and NF-kappa B activation. *Cell* **81**, 495-504.

Hsu S. Y., Lin P., and Hsueh A. J. (1998) BOD (Bcl-2-related ovarian death gene) is an ovarian BH3 domain-containing proapoptotic Bcl-2 protein capable of dimerization with diverse antiapoptotic Bcl-2 members. *Mol Endocrinol* **12**, 1432-1440.

Hsu Y. T., Wolter K. G., and Youle R. J. (1997) Cytosol-to-membrane redistribution of Bax and Bcl-X-L during apoptosis. *Proc Natl Acad Sci U S A* **94**, 3668-3672.

Huang D. C. S. and Strasser A. (2000) BH3-Only proteins - Essential initiators of apoptotic cell death. *Cell* **103**, 839-842.

Huang E. J. and Reichardt L. F. (2001) Neurotrophins: Roles in neuronal development and function. *Annu Rev Neurosci* **24**, 677-736.

Huang Y., Park Y. C., Rich R. L., Segal D., Myszka D. G., and Wu H. (2001) Structural basis of caspase inhibition by XIAP: differential roles of the linker versus the BIR domain. *Cell* **104**, 781-790.

Huber K. A., Kriegstein K., and Unsicker K. (1995) The neurotrophins BDNF, NT-3 and -4, but not NGF, TGF-beta 1 and GDNF, increase the number of NADPH-diaphorase-reactive neurons in rat spinal cord cultures. *Neuroscience* **69**, 771-779.

Hudson J., Granholm A. C., Gerhardt G. A., Henry M. A., Hoffman A., Biddle P., Leela N. S., Mackerlova L., Lile J. D., and Collins F. (1995) Glial cell line-derived neurotrophic factor augments midbrain dopaminergic circuits in vivo. *Brain Res Bull* **36**, 425-432.

- Hughes P. E., Alexi T., Yoshida T., Schreiber S. S., and Knusel B. (1996) Excitotoxic lesion of rat brain with quinolinic acid induces expression of p53 messenger RNA and protein and p53-inducible genes Bax and Gadd-45 in brain areas showing DNA fragmentation. *Neuroscience* **74**, 1143-1160.
- Humbert S., Bryson E. A., Cordelieres F. P., Connors N. C., Datta S. R., Finkbeiner S., Greenberg M. E., and Saudou F. (2002) The IGF-1/Akt pathway is neuroprotective in Huntington's disease and involves Huntingtin phosphorylation by Akt. *Dev Cell* **2**, 831-837.
- Humpel C., Marksteiner J., and Saria A. (1996) Glial-cell-line-derived neurotrophic factor enhances biosynthesis of substance P in striatal neurons in vitro. *Cell Tissue Res* **286**, 249-255.
- Hurko O. and Walsh F. S. (2000) Novel drug development for amyotrophic lateral sclerosis. *J Neurol Sci* **180**, 21-28.
- Hutcheson J., Scatizzi J. C., Bickel E., Brown N. J., Bouillet P., Strasser A., and Perlman H. (2005) Combined loss of proapoptotic genes Bak or Bax with Bim synergizes to cause defects in hematopoiesis and in thymocyte apoptosis. *J Exp Med* **201**, 1949-1960.
- Hyman C., Hofer M., Barde Y. A., Juhasz M., Yancopoulos G. D., Squinto S. P., and Lindsay R. M. (1991) BDNF is a neurotrophic factor for dopaminergic neurons of the substantia nigra. *Nature* **350**, 230-232.
- Hyman C., Juhasz M., Jackson C., Wright P., Ip N. Y., and Lindsay R. M. (1994) Overlapping and distinct actions of the neurotrophins BDNF, NT-3, and NT-4/5 on cultured dopaminergic and GABAergic neurons of the ventral mesencephalon. *J Neurosci* **14**, 335-347.
- 
- I**
- Ibanez C. F. (1996) Neurotrophin-4: the odd one out in the neurotrophin family. *Neurochem Res* **21**, 787-793.
- Ichinose T. and Snider W. D. (2000) Differential effects of TrkC isoforms on sensory axon outgrowth. *J Neurosci Res* **59**, 365-371.
- Imamura T., Takase M., Nishihara A., Oeda E., Hanai J., Kawabata M., and Miyazono K. (1997) Smad6 inhibits signalling by the TGF-beta superfamily. *Nature* **389**, 622-626.
- Ip N. Y., Ibanez C. F., Nye S. H., McClain J., Jones P. F., Gies D. R., Belluscio L., Le Beau M. M., Espinosa R., and Squinto S. P. (1992) Mammalian neurotrophin-4: structure, chromosomal localization, tissue distribution, and receptor specificity. *Proc Natl Acad Sci U S A* **89**, 3060-3064.
- Ip Y. T. and Davis R. J. (1998) Signal transduction by the c-Jun N-terminal kinase (JNK)--from inflammation to development. *Curr Opin Cell Biol* **10**, 205-219.

## **Bibliografía**

---

Irmler M., Thome M., Hahne M., Schneider P., Hofmann K., Steiner V., Bodmer J. L., Schroter M., Burns K., Mattmann C., Rimoldi D., French L. E., and Tschopp J. (1997) Inhibition of death receptor signals by cellular FLIP. *Nature* **388**, 190-195.

Ivkovic S., Polonskaia O., Farinas I., and Ehrlich M. E. (1997) Brain-derived neurotrophic factor regulates maturation of the DARPP-32 phenotype in striatal medium spiny neurons: studies in vivo and in vitro. *Neuroscience* **79**, 509-516.

Ivkovic S. and Ehrlich M. E. (1999) Expression of the striatal DARPP-32/ARPP-21 phenotype in GABAergic neurons requires neurotrophins in vivo and in vitro. *J Neurosci* **19**, 5409-5419.

## **J**

---

Jacobowitz D. M. and Winsky L. (1991) Immunocytochemical localization of calretinin in the forebrain of the rat. *J Comp Neurol* **304**, 198-218.

Jaszai J., Farkas L., Galter D., Reuss B., Strelau J., Unsicker K., and Kriegstein K. (1998) GDNF-related factor persephin is widely distributed throughout the nervous system. *J Neurosci Res* **53**, 494-501.

Jin K. L., Mao X. O., Nagayama T., Goldsmith P. C., and Greenberg D. A. (2000) Induction of vascular endothelial growth factor receptors and phosphatidylinositol 3'-kinase/Akt signaling by global cerebral ischemia in the rat. *Neuroscience* **100**, 713-717.

Jing S., Wen D., Yu Y., Holst P. L., Luo Y., Fang M., Tamir R., Antonio L., Hu Z., Cupples R., Louis J. C., Hu S., Altrock B. W., and Fox G. M. (1996) GDNF-induced activation of the ret protein tyrosine kinase is mediated by GDNFR-alpha, a novel receptor for GDNF. *Cell* **85**, 1113-1124.

Johnson D. E. (2000) Noncaspase proteases in apoptosis. *Leukemia* **14**, 1695-1703.

Johnson G. L. and Lapadat R. (2002) Mitogen-activated protein kinase pathways mediated by ERK, JNK, and p38 protein kinases. *Science* **298**, 1911-1912.

Jones K. R., Farinas I., Backus C., and Reichardt L. F. (1994) Targeted disruption of the BDNF gene perturbs brain and sensory neuron development but not motor neuron development. *Cell* **76**, 989-999.

Jordan J., Bottner M., Schluesener H. J., Unsicker K., and Kriegstein K. (1997) Bone morphogenetic proteins: neurotrophic roles for midbrain dopaminergic neurons and implications of astroglial cells. *Eur J Neurosci* **9**, 1699-1709.

Jung A. B. and Bennett J. P. (1996) Development of striatal dopaminergic function. I. Pre- and postnatal development of mRNAs and binding sites for striatal D1 (D1a) and D2 (D2a) receptors. *Brain Res Dev Brain Res* **94**, 109-120.

**K**

---

Kandasamy K., Srinivasula S. M., Alnemri E. S., Thompson C. B., Korsmeyer S. J., Bryant J. L., and Srivastava R. K. (2003) Involvement of proapoptotic molecules Bax and Bak in tumor necrosis factor-related apoptosis-inducing ligand (TRAIL)-induced mitochondrial disruption and apoptosis: differential regulation of cytochrome c and Smac/DIABLO release. *Cancer Res* **63**, 1712-1721.

Kaplan D. R., Hempstead B. L., Martin-Zanca D., Chao M. V., and Parada L. F. (1991) The trk proto-oncogene product: a signal transducing receptor for nerve growth factor. *Science* **252**, 554-558.

Kaplan D. R. and Miller F. D. (2000) Neurotrophin signal transduction in the nervous system. *Curr Opin Neurobiol* **10**, 381-391.

Karlsson M., Mayordomo R., Reichardt L. F., Catsicas S., Karten H. J., Hallbook F., Haque N. S., and Isacson O. (2001) Nerve growth factor is expressed by postmitotic avian retinal horizontal cells and supports their survival during development in an autocrine mode of action. Neurotrophic factors NGF and FGF-2 alter levels of huntingtin (IT15) in striatal neuronal cell cultures. *Development* **128**, 471-479.

Kato Y., Kravchenko V. V., Tapping R. I., Han J., Ulevitch R. J., and Lee J. D. (1997) BMK1/ERK5 regulates serum-induced early gene expression through transcription factor MEF2C. *EMBO J* **16**, 7054-7066.

Katoh-Semba R., Semba R., Takeuchi I. K., and Kato K. (1998) Age-related changes in levels of brain-derived neurotrophic factor in selected brain regions of rats, normal mice and senescence-accelerated mice: a comparison to those of nerve growth factor and neurotrophin-3. *Neurosci Res* **31**, 227-234.

Katoh-Semba R., Takeuchi I. K., Semba R., and Kato K. (2000) Neurotrophin-3 controls proliferation of granular precursors as well as survival of mature granule neurons in the developing rat cerebellum. *J Neurochem* **74**, 1923-1930.

Kavsak P., Rasmussen R. K., Causing C. G., Bonni S., Zhu H., Thomsen G. H., and Wrana J. L. (2000) Smad7 binds to Smurf2 to form an E3 ubiquitin ligase that targets the TGF beta receptor for degradation. *Mol Cell* **6**, 1365-1375.

Kawabata M., Chytil A., and Moses H. L. (1995) Cloning of A Novel Type-II Serine Threonine Kinase Receptor Through Interaction with the Type-I Transforming Growth-Factor-Beta Receptor. *J Biol Chem* **270**, 5625-5630.

Kawaguchi Y., Wilson C. J., Augood S. J., and Emson P. C. (1995) Striatal interneurones: chemical, physiological and morphological characterization. *Trends Neurosci* **18**, 527-535.

Kearns C. M. and Gash D. M. (1995) GDNF protects nigral dopamine neurons against 6-hydroxydopamine in vivo. *Brain Res* **672**, 104-111.

## **Bibliografía**

---

- Kegel K. B., Meloni A. R., Yi Y., Kim Y. J., Doyle E., Cuiffo B. G., Sapp E., Wang Y., Qin Z. H., Chen J. D., Nevins J. R., Aronin N., and DiFiglia M. (2002) Huntingtin is present in the nucleus, interacts with the transcriptional corepressor C-terminal binding protein, and represses transcription. *J Biol Chem* **277**, 7466-7476.
- Kernie S. G. and Parada L. F. (2000) The molecular basis for understanding neurotrophins and their relevance to neurologic disease. *Arch Neurol* **57**, 654-657.
- Kerr J. F. R., Wyllie A. H., and Currie A. R. (1972) Apoptosis: a basic biological phenomenon with wide-ranging implications in tissue kinetics. *Br J Cancer* **26**, 239-257.
- Kim I. J., Drahushuk K. M., Kim W. Y., Gonsiorek E. A., Lein P., Andres D. A., and Higgins D. (2004) Extracellular signal-regulated kinases regulate dendritic growth in rat sympathetic neurons. *J Neurosci* **24**, 3304-3312.
- Kinugasa T., Ozaki S., Hamanaka S., and Kudo N. (2002) The effects of sciatic nerve axotomy on spinal motoneurons in neonatal Bax-deficient mice. *Neurosci Res* **44**, 439-446.
- Kleiman R. J., Tian N., Krizaj D., Hwang T. N., Copenhagen D. R., and Reichardt L. F. (2000) BDNF-Induced potentiation of spontaneous twitching in innervated myocytes requires calcium release from intracellular stores. *J Neurophysiol* **84**, 472-483.
- Klein R., Jing S. Q., Nanduri V., O'Rourke E., and Barbacid M. (1991) The trk proto-oncogene encodes a receptor for nerve growth factor. *Cell* **65**, 189-197.
- Klein R., Smeyne R. J., Wurst W., Long L. K., Auerbach B. A., Joyner A. L., and Barbacid M. (1993) Targeted disruption of the trkB neurotrophin receptor gene results in nervous system lesions and neonatal death. *Cell* **75**, 113-122.
- Knudson C. M., Tung K. S., Tourtellotte W. G., Brown G. A., and Korsmeyer S. J. (1995) Bax-deficient mice with lymphoid hyperplasia and male germ cell death. *Science* **270**, 96-99.
- Knudson C. M. and Korsmeyer S. J. (1997) Bcl-2 and Bax function independently to regulate cell death. *Nat Genet* **16**, 358-363.
- Kobayashi M., Fujii M., Kurihara K., and Matsuoka I. (1998) Bone morphogenetic protein-2 and retinoic acid induce neurotrophin-3 responsiveness in developing rat sympathetic neurons. *Mol Brain Res* **53**, 206-217.
- Koh S. and Higgins G. A. (1991) Differential regulation of the low-affinity nerve growth factor receptor during postnatal development of the rat brain. *J Comp Neurol* **313**, 494-508.
- Kokaia Z., Bengzon J., Metsis M., Kokaia M., Persson H., and Lindvall O. (1993) Coexpression of neurotrophins and their receptors in neurons of the central nervous system. *Proc Natl Acad Sci U S A* **90**, 6711-6715.

---

## Bibliografía

- Kolb B., Gorny G., Cote S., Ribeiro-da-Silva A., and Cuello A. C. (1997) Nerve growth factor stimulates growth of cortical pyramidal neurons in young adult rats. *Brain Res* **751**, 289-294.
- Kops G. J., de Ruiter N. D., de Vries-Smits A. M., Powell D. R., Bos J. L., and Burgering B. M. (1999) Direct control of the Forkhead transcription factor AFX by protein kinase B. *Nature* **398**, 630-634.
- Korhonen L., Belluardo N., Mudo G., and Lindholm D. (2003) Increase in Bcl-2 phosphorylation and reduced levels of BH3-only Bcl-2 family proteins in kainic acid-mediated neuronal death in the rat brain. *Eur J Neurosci* **18**, 1121-1134.
- Koroshetz W. J., Jenkins B. G., Rosen B. R., and Beal M. F. (1997) Energy metabolism defects in Huntington's disease and effects of coenzyme Q10. *Ann Neurol* **41**, 160-165.
- Korsmeyer S. J., Shutter J. R., Veis D. J., Merry D. E., and Oltvai Z. N. (1993) Bcl-2/Bax: a rheostat that regulates an anti-oxidant pathway and cell death. *Semin Cancer Biol* **4**, 327-332.
- Korsmeyer S. J., Wei M. C., Saito M., Weller S., Oh K. J., and Schlesinger P. H. (2000) Pro-apoptotic cascade activates BID, which oligomerizes BAK or BAX into pores that result in the release of cytochrome c. *Cell Death Differ* **7**, 1166-1173.
- Kotzbauer P. T., Lampe P. A., Heuckeroth R. O., Golden J. P., Creedon D. J., Johnson E. M. J., and Milbrandt J. (1996) Neurturin, a relative of glial-cell-line-derived neurotrophic factor. *Nature* **384**, 467-470.
- Koutouzis T. K., Borlongan C. V., Freeman T. B., Cahill D. W., and Sanberg P. R. (1994) Intrastriatal 3-nitropropionic acid: a behavioral assessment. *Neuroreport* **5**, 2241-2245.
- Kozopas K. M., Yang T., Buchan H. L., Zhou P., and Craig R. W. (1993) McI1, A Gene Expressed in Programmed Myeloid Cell-Differentiation, Has Sequence Similarity to Bcl2. *Proc Natl Acad Sci U S A* **90**, 3516-3520.
- Krajewski S., Tanaka S., Takayama S., Schibler M. J., Fenton W., and Reed J. C. (1993) Investigation of the Subcellular-Distribution of the Bcl-2 Oncoprotein - Residence in the Nuclear-Envelope, Endoplasmic-Reticulum, and Outer Mitochondrial-Membranes. *Cancer Research* **53**, 4701-4714.
- Krajewski S., Mai J. K., Krajewska M., Sikorska M., Mossakowski M. J., and Reed J. C. (1995) Upregulation of bax protein levels in neurons following cerebral ischemia. *J Neurosci* **15**, 6364-6376.
- Krasnova I. N., Ladenheim B., and Cadet J. L. (2005) Amphetamine induces apoptosis of medium spiny striatal projection neurons via the mitochondria-dependent pathway. *FASEB J* **19**, 851-853.

## **Bibliografía**

---

Kuruvilla R., Ye H., and Ginty D. D. (2000) Spatially and functionally distinct roles of the PI3-K effector pathway during NGF signaling in sympathetic neurons. *Neuron* **27**, 499-512.

Kuwana T., Bouchier-Hayes L., Chipuk J. E., Bonzon C., Sullivan B. A., Green D. R., and Newmeyer D. D. (2005) BH3 domains of BH3-only proteins differentially regulate Bax-mediated mitochondrial membrane permeabilization both directly and indirectly. *Mol Cell* **17**, 525-535.

## **L**

---

Labelle C. and Leclerc N. (2000) Exogenous BDNF, NT-3 and NT-4 differentially regulate neurite outgrowth in cultured hippocampal neurons. *Brain Res Dev Brain Res* **123**, 1-11.

Landwehrmeyer G. B., Standaert D. G., Testa C. M., Penney J. B., and Young A. B. (1995) NMDA receptor subunit mRNA expression by projection neurons and interneurons in rat striatum. *J Neurosci* **15**, 5297-5307.

Lang-Rollin I., Vekrellis K., Wang Q., Rideout H. J., and Stefanis L. (2004) Application of proteasomal inhibitors to mouse sympathetic neurons activates the intrinsic apoptotic pathway. *J Neurochem* **90**, 1511-1520.

Lapchak P. A., Miller P. J., Collins F., and Jiao S. (1997) Glial cell line-derived neurotrophic factor attenuates behavioural deficits and regulates nigrostriatal dopaminergic and peptidergic markers in 6-hydroxydopamine-lesioned adult rats: comparison of intraventricular and intranigral delivery. *Neuroscience* **78**, 61-72.

Large T. H., Bodary S. C., Clegg D. O., Weskamp G., Otten U., and Reichardt L. F. (1986) Nerve growth factor gene expression in the developing rat brain. *Science* **234**, 352-355.

Le Roux P., Behar S., Higgins D., and Charette M. (1999) OP-1 enhances dendritic growth from cerebral cortical neurons in vitro. *Exp Neurol* **160**, 151-163.

Lee J. M., Zipfel G. J., and Choi D. W. (1999) The changing landscape of ischaemic brain injury mechanisms. *Nature* **399**, A7-14.

Lee R., Kermani P., Teng K. K., and Hempstead B. L. (2001) Regulation of cell survival by secreted proneurotrophins. *Science* **294**, 1945-1948.

Leeds P., Leng Y., Chalecka-Franaszek E., and Chuang D. M. (2005) Neurotrophins protect against cytosine arabinoside-induced apoptosis of immature rat cerebellar neurons. *Neurochem Int* **46**, 61-72.

Lei K. and Davis R. J. (2003) JNK phosphorylation of Bim-related members of the Bcl2 family induces Bax-dependent apoptosis. *Proc Natl Acad Sci U S A* **100**, 2432-2437.

---

## Bibliografia

- Leibrock J., Lottspeich F., Hohn A., Hofer M., Hengerer B., Masiakowski P., Thoenen H., and Barde Y. A. (1989) Molecular cloning and expression of brain-derived neurotrophic factor. *Nature* **341**, 149-152.
- Lein P., Johnson M., Guo X., Rueger D., and Higgins D. (1995) Osteogenic protein-1 induces dendritic growth in rat sympathetic neurons. *Neuron* **15**, 597-605.
- Lein P. J., Beck H. N., Chandrasekaran V., Gallagher P. J., Chen H. L., Lin Y., Guo X., Kaplan P. L., Tiedge H., and Higgins D. (2002) Glia induce dendritic growth in cultured sympathetic neurons by modulating the balance between bone morphogenetic proteins (BMPs) and BMP antagonists. *J Neurosci* **22**, 10377-10387.
- Leist M., Single B., Castoldi A. F., Kuhnle S., and Nicotera P. (1997) Intracellular adenosine triphosphate (ATP) concentration: a switch in the decision between apoptosis and necrosis. *J Exp Med* **185**, 1481-1486.
- Lemaire P. and Yasuo H. (1998) Developmental signalling: a careful balancing act. *Curr Biol* **8**, R228-R231.
- Lessmann V. (1998) Neurotrophin-dependent modulation of glutamatergic synaptic transmission in the mammalian CNS. *Gen Pharmacol* **31**, 667-674.
- Levi-Montalcini R. and Angeletti P. U. (1968) Nerve growth factor. *Physiol Rev* **48**, 534-569.
- Levivier M., Przedborski S., Bencsics C., and Kang U. J. (1995) Intrastratal implantation of fibroblasts genetically engineered to produce brain-derived neurotrophic factor prevents degeneration of dopaminergic neurons in a rat model of Parkinson's disease. *J Neurosci* **15**, 7810-7820.
- Li L., Murphy T. H., Hayden M. R., and Raymond L. A. (2004) Enhanced striatal NR2B-containing N-methyl-D-aspartate receptor-mediated synaptic currents in a mouse model of Huntington disease. *J Neurophysiol* **92**, 2738-2746.
- Li S. H., Gutekunst C. A., Hersch S. M., and Li X. J. (1998) Interaction of huntingtin-associated protein with dynactin P150Glued. *J Neurosci* **18**, 1261-1269.
- Li W., Cogswell C. A., and LoTurco J. J. (1998) Neuronal differentiation of precursors in the neocortical ventricular zone is triggered by BMP. *J Neurosci* **18**, 8853-8862.
- Lim D. A., Tramontin A. D., Trevejo J. M., Herrera D. G., Garcia-Verdugo J. M., and Varez-Buylla A. (2000) Noggin antagonizes BMP signaling to create a niche for adult neurogenesis. *Neuron* **28**, 713-726.
- Lin A. (2003) Activation of the JNK signaling pathway: breaking the brake on apoptosis. *Bioessays* **25**, 17-24.

## **Bibliografía**

---

- Lin L. F., Doherty D. H., Lile J. D., Bektesh S., and Collins F. (1993) GDNF: a glial cell line-derived neurotrophic factor for midbrain dopaminergic neurons. *Science* **260**, 1130-1132.
- Lindsten T., Ross A. J., King A., Zong W. X., Rathmell J. C., Shiels H. A., Ulrich E., Waymire K. G., Mahar P., Frauwirth K., Chen Y. F., Wei M., Eng V. M., Adelman D. M., Simon M. C., Ma A., Golden J. A., Evan G., Korsmeyer S. J., MacGregor G. R., and Thompson C. B. (2000) The combined functions of proapoptotic Bcl-2 family members Bak and Bax are essential for normal development of multiple tissues. *Mol Cell* **6**, 1389-1399.
- Lindvall O., Kokaia Z., Bengzon J., Elmer E., and Kokaia M. (1994) Neurotrophins and brain insults. *Trends Neurosci* **17**, 490-496.
- Liu L., Cavanaugh J. E., Wang Y., Sakagami H., Mao Z., and Xia Z. (2003) ERK5 activation of MEF2-mediated gene expression plays a critical role in BDNF-promoted survival of developing but not mature cortical neurons. *Proc Natl Acad Sci U S A* **100**, 8532-8537.
- Liu Y. and Rohrschneider L. R. (2002) The gift of Gab. *FEBS Lett* **515**, 1-7.
- Liu Z. G. (2003) Adding facets to TNF signaling. The JNK angle. *Mol Cell* **12**, 795-796.
- Lockshin R. A. and Williams C. M. (1965) Programmed cell death-I. Citology of degeneration in the intersegmental muscles of the pernyi silkworm. *J Insect Physiol* **11**, 123-133.
- Lodi R., Schapira A. H., Manners D., Styles P., Wood N. W., Taylor D. J., and Warner T. T. (2000) Abnormal in vivo skeletal muscle energy metabolism in Huntington's disease and dentatorubropallidoluysian atrophy. *Ann Neurol* **48**, 72-76.
- Lok J. and Martin L. J. (2002) Rapid subcellular redistribution of Bax precedes caspase-3 and endonuclease activation during excitotoxic neuronal apoptosis in rat brain. *J Neurotrauma* **19**, 815-828.
- Lopez-Coviella I., Berse B., Krauss R., Thies R. S., and Blusztajn J. K. (2000) Induction and maintenance of the neuronal cholinergic phenotype in the central nervous system by BMP-9. *Science* **289**, 313-316.
- Luciano F., Jacquel A., Colosetti P., Herrant M., Cagnol S., Pages G., and Auberger P. (2003) Phosphorylation of Bim-EL by Erk1/2 on serine 69 promotes its degradation via the proteasome pathway and regulates its proapoptotic function. *Oncogene* **22**, 6785-6793.
- Luo H. R., Hattori H., Hossain M. A., Hester L., Huang Y., Lee-Kwon W., Donowitz M., Nagata E., and Snyder S. H. (2003) Akt as a mediator of cell death. *Proc Natl Acad Sci U S A* **100**, 11712-11717.

**M**

- Mabie P. C., Mehler M. F., Marmor R., Papavasiliou A., Song Q., and Kessler J. A. (1997) Bone morphogenetic proteins induce astroglial differentiation of oligodendroglial-astroglial progenitor cells. *J Neurosci* **17**, 4112-4120.
- Mabie P. C., Mehler M. F., and Kessler J. A. (1999) Multiple roles of bone morphogenetic protein signaling in the regulation of cortical cell number and phenotype. *J Neurosci* **19**, 7077-7088.
- MacDonald V. and Halliday G. (2002) Pyramidal cell loss in motor cortices in Huntington's disease. *Neurobiol Dis* **10**, 378-386.
- MacEwan D. J. (2002) TNF ligands and receptors--a matter of life and death. *Br J Pharmacol* **135**, 855-875.
- MacInnis B. L. and Campenot R. B. (2002) Retrograde support of neuronal survival without retrograde transport of nerve growth factor. *Science* **295**, 1536-1539.
- Maisonpierre P. C., Belluscio L., Squinto S., Ip N. Y., Furth M. E., Lindsay R. M., and Yancopoulos G. D. (1990) Neurotrophin-3: a neurotrophic factor related to NGF and BDNF. *Science* **247**, 1446-1451.
- Mangiarini L., Sathasivam K., Seller M., Cozens B., Harper A., Hetherington C., Lawton M., Trottier Y., Lehrach H., Davies S. W., and Bates G. P. (1996) Exon 1 of the HD gene with an expanded CAG repeat is sufficient to cause a progressive neurological phenotype in transgenic mice. *Cell* **87**, 493-506.
- Mao L., Tang Q., Samdani S., Liu Z., and Wang J. Q. (2004) Regulation of MAPK/ERK phosphorylation via ionotropic glutamate receptors in cultured rat striatal neurons. *Eur J Neurosci* **19**, 1207-1216.
- Marani M., Tenev T., Hancock D., Downward J., and Lemoine N. R. (2002) Identification of novel isoforms of the BH3 domain protein Bim which directly activate Bax to trigger apoptosis. *Mol Cell Biol* **22**, 3577-3589.
- Marco S., Canudas A. M., Canals J. M., Gavalda N., Perez-Navarro E., and Alberch J. (2002a) Excitatory amino acids differentially regulate the expression of GDNF, neurturin, and their receptors in the adult rat striatum. *Exp Neurol* **174**, 243-252.
- Marco S., Perez-Navarro E., Tolosa E., Arenas E., and Alberch J. (2002c) Striatopallidal neurons are selectively protected by neurturin in an excitotoxic model of Huntington's disease. *J Neurobiol* **50**, 323-332.
- Marco S., Saura J., Perez-Navarro E., Marti M. J., Tolosa E., and Alberch J. (2002b) Regulation of c-Ret, GFR alpha 1, and GFR alpha 2 in the substantia nigra pars compacta in a rat model of Parkinson's disease. *J Neurobiol* **52**, 343-351.

## Bibliografía

---

- Markus A., Zhong J., and Snider W. D. (2002) Raf and akt mediate distinct aspects of sensory axon growth. *Neuron* **35**, 65-76.
- Martin-Zanca D., Mitra G., Long L. K., and Barbacid M. (1986) Molecular characterization of the human trk oncogene. *Cold Spring Harb Symp Quant Biol* **51 Pt 2**, 983-992.
- Martin-Zanca D., Oskam R., Mitra G., Copeland T., and Barbacid M. (1989) Molecular and biochemical characterization of the human trk proto-oncogene. *Mol Cell Biol* **9**, 24-33.
- Martin J. B. and Gusella J. F. (1986) Huntington's disease. Pathogenesis and management. *N Engl J Med* **315**, 1267-1276.
- Martin L. J. (2001) Neuronal cell death in nervous system development, disease, and injury (Review). *Int J Mol Med* **7**, 455-478.
- Martinez-Serrano A. and Bjorklund A. (1996) Protection of the neostriatum against excitotoxic damage by neurotrophin-producing, genetically modified neural stem cells. *J Neurosci* **16**, 4604-4616.
- Martinez G., Carnazza M. L., Di G. C., Sorrenti V., and Vanella A. (2001) Expression of bone morphogenetic protein-6 and transforming growth factor-beta1 in the rat brain after a mild and reversible ischemic damage. *Brain Res* **894**, 1-11.
- Martinez H. J., Dreyfus C. F., Jonakait G. M., and Black I. B. (1985) Nerve growth factor promotes cholinergic development in brain striatal cultures. *Proc Natl Acad Sci U S A* **82**, 7777-7781.
- Massague J., Hata A., and Liu F. (1997) TGF-beta signalling through the Smad pathway. *Trends in Cell Biology* **7**, 187-192.
- Masure S., Cik M., Pangalos M. N., Bonaventure P., Verhasselt P., Lesage A. S., Leysen J. E., and Gordon R. D. (1998) Molecular cloning, expression and tissue distribution of glial-cell-line-derived neurotrophic factor family receptor alpha-3 (GFRalpha-3). *Eur J Biochem* **251**, 622-630.
- Masure S., Cik M., Hoefnagel E., Nosrat C. A., Van D. L., I, Scott R., Van Gompel P., Lesage A. S., Verhasselt P., Ibanez C. F., and Gordon R. D. (2000) Mammalian GFRalpha -4, a divergent member of the GFRalpha family of coreceptors for glial cell line-derived neurotrophic factor family ligands, is a receptor for the neurotrophic factor persephin. *J Biol Chem* **275**, 39427-39434.
- Matsuzaki H., Tamatani M., Mitsuda N., Namikawa K., Kiyama H., Miyake S., and Tohyama M. (1999) Activation of Akt kinase inhibits apoptosis and changes in Bcl-2 and Bax expression induced by nitric oxide in primary hippocampal neurons. *J Neurochem* **73**, 2037-2046.

---

## Bibliografía

- Maundrell K., Antonsson B., Magnenat E., Camps M., Muda M., Chabert C., Gillieron C., Boschert U., Vial-Knecht E., Martinou J. C., and Arkinstall S. (1997) Bcl-2 undergoes phosphorylation by c-Jun N-terminal kinase/stress-activated protein kinases in the presence of the constitutively active GTP-binding protein Rac1. *J Biol Chem* **272**, 25238-25242.
- Mazzoni I. E., Said F. A., Aloyz R., Miller F. D., and Kaplan D. (1999) Ras regulates sympathetic neuron survival by suppressing the p53-mediated cell death pathway. *J Neurosci* **19**, 9716-9727.
- Mazzucchelli C., Vantaggiato C., Ciamei A., Fasano S., Pakhotin P., Krezel W., Welzl H., Wolfer D. P., Pages G., Valverde O., Marowsky A., Porrazzo A., Orban P. C., Maldonado R., Ehrengruber M. U., Cestari V., Lipp H. P., Chapman P. F., Pouyssegur J., and Brambilla R. (2002) Knockout of ERK1 MAP kinase enhances synaptic plasticity in the striatum and facilitates striatal-mediated learning and memory. *Neuron* **34**, 807-820.
- McAllister A. K., Katz L. C., and Lo D. C. (1997) Opposing roles for endogenous BDNF and NT-3 in regulating cortical dendritic growth. *Neuron* **18**, 767-778.
- McDonnell T. J., Deane N., Platt F. M., Nunez G., Jaeger U., McKearn J. P., and Korsmeyer S. J. (1989) Bcl-2-Immunoglobulin Transgenic Mice Demonstrate Extended B-Cell Survival and Follicular Lymphoproliferation. *Cell* **57**, 79-88.
- McMurray C. T. (2001) Huntington's disease: new hope for therapeutics. *Trends Neurosci* **24**, S32-S38.
- Mehler M. F. and Kessler J. A. (1994) Growth factor regulation of neuronal development. *Dev Neurosci* **16**, 180-195.
- Mehler M. F., Mabie P. C., Zhang D., and Kessler J. A. (1997) Bone morphogenetic proteins in the nervous system. *Trends Neurosci* **20**, 309-317.
- Mehler M. F., Mabie P. C., Zhu G., Gokhan S., and Kessler J. A. (2000) Developmental changes in progenitor cell responsiveness to bone morphogenetic proteins differentially modulate progressive CNS lineage fate. *Dev Neurosci* **22**, 74-85.
- Menalled L. B., Sison J. D., Wu Y., Olivieri M., Li X. J., Li H., Zeitlin S., and Chesselet M. F. (2002) Early motor dysfunction and striosomal distribution of huntingtin microaggregates in Huntington's disease knock-in mice. *J Neurosci* **22**, 8266-8276.
- Merlio J. P., Ernfors P., Jaber M., and Persson H. (1992) Molecular cloning of rat trkB and distribution of cells expressing messenger RNAs for members of the trkB family in the rat central nervous system. *Neuroscience* **51**, 513-532.
- Merry D. E. and Korsmeyer S. J. (1997) Bcl-2 gene family in the nervous system. *Annu Rev Neurosci* **20**, 245-267.

## Bibliografía

---

- Metzler M., Helgason C. D., Dragatsis I., Zhang T., Gan L., Pineault N., Zeitlin S. O., Humphries R. K., and Hayden M. R. (2000) Huntingtin is required for normal hematopoiesis. *Hum Mol Genet* **9**, 387-394.
- Metzler M., Legendre-Guillemain V., Gan L., Chopra V., Kwok A., McPherson P. S., and Hayden M. R. (2001) HIP1 functions in clathrin-mediated endocytosis through binding to clathrin and adaptor protein 2. *J Biol Chem* **276**, 39271-39276.
- Michaelidis T. M., Sendtner M., Cooper J. D., Airaksinen M. S., Holtmann B., Meyer M., and Thoenen H. (1996) Inactivation of bcl-2 results in progressive degeneration of motoneurons, sympathetic and sensory neurons during early postnatal development. *Neuron* **17**, 75-89.
- Middlemas D. S., Meisenhelder J., and Hunter T. (1994) Identification of TrkB autophosphorylation sites and evidence that phospholipase C-gamma 1 is a substrate of the TrkB receptor. *J Biol Chem* **269**, 5458-5466.
- Mielke K., Brecht S., Dorst A., and Herdegen T. (1999) Activity and expression of JNK1, p38 and ERK kinases, c-Jun N-terminal phosphorylation, and c-jun promoter binding in the adult rat brain following kainate-induced seizures. *Neuroscience* **91**, 471-483.
- Mikhailov V., Mikhailova M., Pulkrabek D. J., Dong Z., Venkatachalam M. A., and Saikumar P. (2001) Bcl-2 prevents Bax oligomerization in the mitochondrial outer membrane. *J Biol Chem* **276**, 18361-18374.
- Mikhailov V., Mikhailova M., Degenhardt K., Venkatachalam M. A., White E., and Saikumar P. (2003) Association of Bax and Bak homo-oligomers in mitochondria. Bax requirement for Bak reorganization and cytochrome c release. *J Biol Chem* **278**, 5367-5376.
- Milbrandt J., de Sauvage F. J., Fahrner T. J., Baloh R. H., Leitner M. L., Tansey M. G., Lampe P. A., Heuckeroth R. O., Kotzbauer P. T., Simburger K. S., Golden J. P., Davies J. A., Vejsada R., Kato A. C., Hynes M., Sherman D., Nishimura M., Wang L. C., Vandlen R., Moffat B., Klein R. D., Poulsen K., Gray C., Garces A., and Johnson E. M. J. (1998) Persephin, a novel neurotrophic factor related to GDNF and neurturin. *Neuron* **20**, 245-253.
- Miller F. D. and Kaplan D. R. (2001) Neurotrophin signalling pathways regulating neuronal apoptosis. *Cell Mol Life Sci* **58**, 1045-1053.
- Minichiello L., Calella A. M., Medina D. L., Bonhoeffer T., Klein R., and Korte M. (2002) Mechanism of TrkB-mediated hippocampal long-term potentiation. *Neuron* **36**, 121-137.
- Miranda R. C., Sohrabji F., and Toran-Allerand C. D. (1993) Neuronal colocalization of mRNAs for neurotrophins and their receptors in the developing central nervous system suggests a potential for autocrine interactions. *Proc Natl Acad Sci U S A* **90**, 6439-6443.

---

## Bibliografia

- Mishina Y., Suzuki A., Ueno N., and Behringer R. R. (1995) Bmpr encodes a type I bone morphogenetic protein receptor that is essential for gastrulation during mouse embryogenesis. *Genes Dev* **9**, 3027-3037.
- Mizuno K., Carnahan J., and Nawa H. (1994) Brain-derived neurotrophic factor promotes differentiation of striatal GABAergic neurons. *Dev Biol* **165**, 243-256.
- Mobley W. C., Rutkowski J. L., Tennekoon G. I., Buchanan K., and Johnston M. V. (1985) Choline acetyltransferase activity in striatum of neonatal rats increased by nerve growth factor. *Science* **229**, 284-287.
- Mobley W. C., Edwards R. H., Riopelle R. J., Otten U. H., and Johnston M. V. (1986) Nerve Growth-Factor and Cholinergic Differentiation in the Developing Corpus Striatum. *Annals of Neurology* **20**, 419-420.
- Mobley W. C., Woo J. E., Edwards R. H., Riopelle R. J., Longo F. M., Weskamp G., Otten U., Valletta J. S., and Johnston M. V. (1989) Developmental regulation of nerve growth factor and its receptor in the rat caudate-putamen. *Neuron* **3**, 655-664.
- Mogi M., Harada M., Kondo T., Mizuno Y., Narabayashi H., Riederer P., and Nagatsu T. (1996) The soluble form of Fas molecule is elevated in parkinsonian brain tissues. *Neurosci Lett* **220**, 195-198.
- Moon E. S. and Herkenham M. (1984) Comparative development of striatal opiate receptors and dopamine revealed by autoradiography and histofluorescence. *Brain Res* **305**, 27-42.
- Moore M. W., Klein R. D., Farinas I., Sauer H., Armanini M., Phillips H., Reichardt L. F., Ryan A. M., Carver-Moore K., and Rosenthal A. (1996) Renal and neuronal abnormalities in mice lacking GDNF. *Nature* **382**, 76-79.
- Morishima Y., Gotoh Y., Zieg J., Barrett T., Takano H., Flavell R., Davis R. J., Shirasaki Y., and Greenberg M. E. (2001) Beta-amyloid induces neuronal apoptosis via a mechanism that involves the c-Jun N-terminal kinase pathway and the induction of Fas ligand. *J Neurosci* **21**, 7551-7560.
- Morrison S. J., Perez S. E., Qiao Z., Verdi J. M., Hicks C., Weinmaster G., and Anderson D. J. (2000) Transient Notch activation initiates an irreversible switch from neurogenesis to gliogenesis by neural crest stem cells. *Cell* **101**, 499-510.
- Motoyama N., Wang F., Roth K. A., Sawa H., Nakayama K., Nakayama K., Negishi I., Senju S., Zhang Q., Fujii S., and . (1995) Massive cell death of immature hematopoietic cells and neurons in Bcl-x-deficient mice. *Science* **267**, 1506-1510.
- Mount H. T., Dean D. O., Alberch J., Dreyfus C. F., and Black I. B. (1995) Glial cell line-derived neurotrophic factor promotes the survival and morphologic differentiation of Purkinje cells. *Proc Natl Acad Sci U S A* **92**, 9092-9096.

## **Bibliografía**

---

Moustakas A. and Heldin C. H. (2002) From mono- to oligo-Smads: the heart of the matter in TGF-beta signal transduction. *Genes Dev* **16**, 1867-1871.

Murrin L. C. and Zeng W. Y. (1989) Dopamine D1 receptor development in the rat striatum: early localization in striosomes. *Brain Res* **480**, 170-177.

## **N**

---

Nagatsu T., Mogi M., Ichinose H., and Togari A. (2000) Changes in cytokines and neurotrophins in Parkinson's disease. *J Neural Transm Suppl* 277-290.

Nakao A., Afrakhte M., Moren A., Nakayama T., Christian J. L., Heuchel R., Itoh S., Kawabata N., Heldin N. E., Heldin C. H., and Tendijke P. (1997) Identification of Smad7, a TGF beta-inducible antagonist of TGF-beta signalling. *Nature* **389**, 631-635.

Nakao N., Odin P., Lindvall O., and Brundin P. (1996) Differential trophic effects of basic fibroblast growth factor, insulin-like growth factor-1, and neurotrophin-3 on striatal neurons in culture. *Exp Neurol* **138**, 144-157.

Namikawa K., Honma M., Abe K., Takeda M., Mansur K., Obata T., Miwa A., Okado H., and Kiyama H. (2000) Akt/protein kinase B prevents injury-induced motoneuron death and accelerates axonal regeneration. *J Neurosci* **20**, 2875-2886.

Nasir J., Floresco S. B., O'Kusky J. R., Diewert V. M., Richman J. M., Zeisler J., Borowski A., Marth J. D., Phillips A. G., and Hayden M. R. (1995) Targeted disruption of the Huntington's disease gene results in embryonic lethality and behavioral and morphological changes in heterozygotes. *Cell* **81**, 811-823.

Nastuk M. A. and Graybiel A. M. (1985) Patterns of muscarinic cholinergic binding in the striatum and their relation to dopamine islands and striosomes. *J Comp Neurol* **237**, 176-194.

Natsume A., Mata M., Goss J., Huang S., Wolfe D., Oligino T., Glorioso J., and Fink D. J. (2001) Bcl-2 and GDNF delivered by HSV-mediated gene transfer act additively to protect dopaminergic neurons from 6-OHDA-induced degeneration. *Exp Neurol* **169**, 231-238.

Naveilhan P., Baudet C., Mikaelson A., Shen L., Westphal H., and Ernfors P. (1998) Expression and regulation of GFRalpha3, a glial cell line-derived neurotrophic factor family receptor. *Proc Natl Acad Sci U S A* **95**, 1295-1300.

Nechushtan A., Smith C. L., Lamensdorf I., Yoon S. H., and Youle R. J. (2001) Bax and Bak coalesce into novel mitochondria-associated clusters during apoptosis. *J Cell Biol* **153**, 1265-1276.

Newmeyer D. D., Farschon D. M., and Reed J. C. (1994) Cell-free apoptosis in Xenopus egg extracts: inhibition by Bcl-2 and requirement for an organelle fraction enriched in mitochondria. *Cell* **79**, 353-364.

---

## Bibliografía

- Nishikawa S., Goto S., Hamasaki T., Ogawa M., and Ushio Y. (1999) Transient and compartmental expression of the reeler gene product reelin in the developing rat striatum. *Brain Res* **850**, 244-248.
- Nishimune H., Vasseur S., Wiese S., Birling M. C., Holtmann B., Sendtner M., Iovanna J. L., and Henderson C. E. (2000) Reg-2 is a motoneuron neurotrophic factor and a signalling intermediate in the CNTF survival pathway. *Nat Cell Biol* **2**, 906-914.
- Nishino J., Mochida K., Ohfuri Y., Shimazaki T., Meno C., Ohishi S., Matsuda Y., Fujii H., Saijoh Y., and Hamada H. (1999) GFR alpha 3, a component of the artemin receptor, is required for migration and survival of the superior cervical ganglion. *Neuron* **23**, 725-736.
- Nonner D., Barrett E. F., Kaplan P., and Barrett J. N. (2001) Bone morphogenetic proteins (BMP6 and BMP7) enhance the protective effect of neurotrophins on cultured septal cholinergic neurons during hypoglycemia. *J Neurochem* **77**, 691-699.
- Nonner D., Panickar K., Barrett E. F., and Barrett J. N. (2004) Bone morphogenetic proteins and neurotrophins provide complementary protection of septal cholinergic function during phosphatase inhibitor-induced stress. *J Neurochem* **91**, 77-87.
- Nonomura T., Kubo T., Oka T., Shimokawa K., Yamada M., Enokido Y., and Hatanaka H. (1996) Signaling pathways and survival effects of BDNF and NT-3 on cultured cerebellar granule cells. *Brain Res Dev Brain Res* **97**, 42-50.
- Noshita N., Sugawara T., Hayashi T., Lewen A., Omar G., and Chan P. H. (2002) Copper/zinc superoxide dismutase attenuates neuronal cell death by preventing extracellular signal-regulated kinase activation after transient focal cerebral ischemia in mice. *J Neurosci* **22**, 7923-7930.
- Nosrat C. A., Tomac A., Lindqvist E., Lindskog S., Humpel C., Stromberg I., Ebendal T., Hoffer B. J., and Olson L. (1996) Cellular expression of GDNF mRNA suggests multiple functions inside and outside the nervous system. *Cell Tissue Res* **286**, 191-207.
- Nosrat C. A., Tomac A., Hoffer B. J., and Olson L. (1997) Cellular and developmental patterns of expression of Ret and glial cell line-derived neurotrophic factor receptor alpha mRNAs. *Exp Brain Res* **115**, 410-422.
- Nykjaer A., Willnow T. E., and Petersen C. M. (2005) p75NTR--live or let die. *Curr Opin Neurobiol* **15**, 49-57.

---

## O

- O'Connor L., Strasser A., O'Reilly L. A., Hausmann G., Adams J. M., Cory S., and Huang D. C. S. (1998) Bim: a novel member of the Bcl-2 family that promotes apoptosis. *EMBO J* **17**, 384-395.

## **Bibliografía**

---

- Oakley R. A., Lefcort F. B., Plouffe P., Ritter A., and Frank E. (2000) Neurotrophin-3 promotes the survival of a limited subpopulation of cutaneous sensory neurons. *Dev Biol* **224**, 415-427.
- Obermeier A., Bradshaw R. A., Seedorf K., Choidas A., Schlessinger J., and Ullrich A. (1994) Neuronal differentiation signals are controlled by nerve growth factor receptor/Trk binding sites for SHC and PLC gamma. *EMBO J* **13**, 1585-1590.
- Oda E., Ohki R., Murasawa H., Nemoto J., Shibue T., Yamashita T., Tokino T., Taniguchi T., and Tanaka N. (2000) Noxa, a BH3-only member of the Bcl-2 family and candidate mediator of p53-induced apoptosis. *Science* **288**, 1053-1058.
- Okuno S., Saito A., Hayashi T., and Chan P. H. (2004) The c-Jun N-terminal protein kinase signaling pathway mediates Bax activation and subsequent neuronal apoptosis through interaction with Bim after transient focal cerebral ischemia. *J Neurosci* **24**, 7879-7887.
- Oltvai Z. N., Milliman C. L., and Korsmeyer S. J. (1993) Bcl-2 Heterodimerizes In-Vivo with A Conserved Homolog, Bax, That Accelerates Programmed Cell-Death. *Cell* **74**, 609-619.
- Oo T. F., Ries V., Cho J., Kholodilov N., and Burke R. E. (2005) Anatomical basis of glial cell line-derived neurotrophic factor expression in the striatum and related basal ganglia during postnatal development of the rat. *J Comp Neurol* **484**, 57-67.
- Oppenheim R. W. (1991) Cell death during development of the nervous system. *Annu Rev Neurosci* **14**, 453-501.
- Oppenheim R. W., Yin Q. W., Prevette D., and Yan Q. (1992) Brain-derived neurotrophic factor rescues developing avian motoneurons from cell death. *Nature* **360**, 755-757.
- Oppenheim R. W., Houenou L. J., Johnson J. E., Lin L. F., Li L., Lo A. C., Newsome A. L., Prevette D. M., and Wang S. (1995) Developing motor neurons rescued from programmed and axotomy-induced cell death by GDNF. *Nature* **373**, 344-346.
- Orike N., Middleton G., Borthwick E., Buchman V., Cowen T., and Davies A. M. (2001) Role of PI 3-kinase, Akt and Bcl-2-related proteins in sustaining the survival of neurotrophic factor-independent adult sympathetic neurons. *J Cell Biol* **154**, 995-1005.
- Quimet C. C., LaMantia A. S., Goldman-Rakic P., Rakic P., and Greengard P. (1992) Immunocytochemical localization of DARPP-32, a dopamine and cyclic-AMP-regulated phosphoprotein, in the primate brain. *J Comp Neurol* **323**, 209-218.
- Ouyang Y., Kantor D., Harris K. M., Schuman E. M., and Kennedy M. B. (1997) Visualization of the distribution of autophosphorylated calcium/calmodulin-dependent protein kinase II after tetanic stimulation in the CA1 area of the hippocampus. *J Neurosci* **17**, 5416-5427.

**P**

---

- Pahnke J., Mix E., Knoblich R., Muller J., Zschiesche M., Schubert B., Koczan D., Bauer P., Bottcher T., Thiesen H. E., Lazarov L., Wree A., and Rolfs A. (2004) Overexpression of glial cell line-derived neurotrophic factor induces genes regulating migration and differentiation of neuronal progenitor cells. *Exp Cell Res* **297**, 484-494.
- Palfi S., Ferrante R. J., Brouillet E., Beal M. F., Dolan R., Guyot M. C., Peschanski M., and Hantraye P. (1996) Chronic 3-nitropropionic acid treatment in baboons replicates the cognitive and motor deficits of Huntington's disease. *J Neurosci* **16**, 3019-3025.
- Pang Z. and Geddes J. W. (1997) Mechanisms of cell death induced by the mitochondrial toxin 3-nitropropionic acid: acute excitotoxic necrosis and delayed apoptosis. *J Neurosci* **17**, 3064-3073.
- Panov A. V., Gutekunst C. A., Leavitt B. R., Hayden M. R., Burke J. R., Strittmatter W. J., and Greenamyre J. T. (2002) Early mitochondrial calcium defects in Huntington's disease are a direct effect of polyglutamines. *Nat Neurosci* **5**, 731-736.
- Pap M. and Cooper G. M. (1998) Role of glycogen synthase kinase-3 in the phosphatidylinositol 3-Kinase/Akt cell survival pathway. *J Biol Chem* **273**, 19929-19932.
- Paratcha G., Ledda F., and Ibanez C. F. (2003) The neural cell adhesion molecule NCAM is an alternative signaling receptor for GDNF family Ligands. *Cell* **113**, 867-879.
- Parrizas M., Saltiel A. R., and LeRoith D. (1997) Insulin-like growth factor 1 inhibits apoptosis using the phosphatidylinositol 3'-kinase and mitogen-activated protein kinase pathways. *J Biol Chem* **272**, 154-161.
- Patapoutian A. and Reichardt L. F. (2001) Trk receptors: mediators of neurotrophin action. *Curr Opin Neurobiol* **11**, 272-280.
- Patel T. D., Jackman A., Rice F. L., Kucera J., and Snider W. D. (2000) Development of sensory neurons in the absence of NGF/TrkA signaling in vivo. *Neuron* **25**, 345-357.
- Patel T. D., Kramer I., Kucera J., Niederkofler V., Jessell T. M., Arber S., and Snider W. D. (2003) Peripheral NT3 signaling is required for ETS protein expression and central patterning of proprioceptive sensory afferents. *Neuron* **38**, 403-416.
- Paveliev M., Airaksinen M. S., and Saarma M. (2004) GDNF family ligands activate multiple events during axonal growth in mature sensory neurons. *Mol Cell Neurosci* **25**, 453-459.
- Pearson G., Robinson F., Beers G. T., Xu B. E., Karandikar M., Berman K., and Cobb M. H. (2001) Mitogen-activated protein (MAP) kinase pathways: regulation and physiological functions. *Endocr Rev* **22**, 153-183.

## **Bibliografía**

---

- Perez-Navarro E., Alberch J., Arenas E., Calvo N., and Marsal J. (1994) Nerve growth factor and basic fibroblast growth factor protect cholinergic neurons against quinolinic acid excitotoxicity in rat neostriatum. *Eur J Neurosci* **6**, 706-711.
- Perez-Navarro E. and Alberch J. (1995) Protective role of nerve growth factor against excitatory amino acid injury during neostriatal cholinergic neurons postnatal development. *Exp Neurol* **135**, 146-152.
- Perez-Navarro E., Arenas E., Reiriz J., Calvo N., and Alberch J. (1996) Glial cell line-derived neurotrophic factor protects striatal calbindin-immunoreactive neurons from excitotoxic damage. *Neuroscience* **75**, 345-352.
- Perez-Navarro E., Alberch J., Neveu I., and Arenas E. (1999a) Brain-derived neurotrophic factor, neurotrophin-3 and neurotrophin-4/5 differentially regulate the phenotype and prevent degenerative changes in striatal projection neurons after excitotoxicity in vivo. *Neuroscience* **91**, 1257-1264.
- Perez-Navarro E., Arenas E., Marco S., and Alberch J. (1999b) Intrastratal grafting of a GDNF-producing cell line protects striatonigral neurons from quinolinic acid excitotoxicity in vivo. *Eur J Neurosci* **11**, 241-249.
- Perez-Navarro E., Canudas A. M., Akerud P., Alberch J., and Arenas E. (2000a) Brain-Derived Neurotrophic Factor, Neurotrophin-3, and Neurotrophin-4/5 prevent the death of striatal projection neurons in a rodent model of Huntington's disease. *J Neurochem* **75**, 2190-2199.
- Perez-Navarro E., Akerud P., Marco S., Canals J. M., Tolosa E., Arenas E., and Alberch J. (2000b) Neurturin protects striatal projection neurons but not interneurons in a rat model of Huntington's disease. *Neuroscience* **98**, 89-96.
- Perides G., Jensen F. E., Edgecomb P., Rueger D. C., and Charness M. E. (1995) Neuroprotective effect of human osteogenic protein-1 in a rat model of cerebral hypoxia/ischemia. *Neurosci Lett* **187**, 21-24.
- Perkinton M. S., Sihra T. S., and Williams R. J. (1999) Ca(2+)-permeable AMPA receptors induce phosphorylation of cAMP response element-binding protein through a phosphatidylinositol 3-kinase-dependent stimulation of the mitogen-activated protein kinase signaling cascade in neurons. *J Neurosci* **19**, 5861-5874.
- Perkinton M. S., Ip J. K., Wood G. L., Crossthwaite A. J., and Williams R. J. (2002) Phosphatidylinositol 3-kinase is a central mediator of NMDA receptor signalling to MAP kinase (Erk1/2), Akt/PKB and CREB in striatal neurones. *J Neurochem* **80**, 239-254.
- Perron J. C. and Bixby J. L. (1999) Distinct neurite outgrowth signaling pathways converge on ERK activation. *Mol Cell Neurosci* **13**, 362-378.

---

## Bibliografia

- Petersen A. and Brundin P. (1999) Effects of ciliary neurotrophic factor on excitotoxicity and calcium-ionophore A23187-induced cell death in cultured embryonic striatal neurons. *Exp Neurol* **160**, 402-412.
- Pettmann B. and Henderson C. E. (1998) Neuronal cell death. *Neuron* **20**, 633-647.
- Peyssonnaux C. and Eychene A. (2001) The Raf/MEK/ERK pathway: new concepts of activation. *Biol Cell* **93**, 53-62.
- Philchenkov A. (2004) Caspases: potential targets for regulating cell death. *J Cell Mol Med* **8**, 432-444.
- Pichel J. G., Shen L., Sheng H. Z., Granholm A. C., Drago J., Grinberg A., Lee E. J., Huang S. P., Saarma M., Hoffer B. J., Sariola H., and Westphal H. (1996) GDNF is required for kidney development and enteric innervation. *Cold Spring Harb Symp Quant Biol* **61**, 445-457.
- Poteryaev D., Titievsky A., Sun Y. F., Thomas-Crusells J., Lindahl M., Billaud M., Arumae U., and Saarma M. (1999) GDNF triggers a novel Ret-independent Src kinase family-coupled signaling via a GPI-linked GDNF receptor alpha 1. *FEBS L* **463**, 63-66.
- Poulin B., Sekiya F., and Rhee S. G. (2000) Differential roles of the Src homology 2 domains of phospholipase C-gamma1 (PLC-gamma1) in platelet-derived growth factor-induced activation of PLC-gamma1 in intact cells. *J Biol Chem* **275**, 6411-6416.
- Pozas E., Ballabriga J., Planas A. M., and Ferrer I. (1997) Kainic acid-induced excitotoxicity is associated with a complex c-Fos and c-Jun response which does not preclude either cell death or survival. *J Neurobiol* **33**, 232-246.
- Pozzi L., Hakansson K., Usiello A., Borgkvist A., Lindskog M., Greengard P., and Fisone G. (2003) Opposite regulation by typical and atypical anti-psychotics of ERK1/2, CREB and Elk-1 phosphorylation in mouse dorsal striatum. *J Neurochem* **86**, 451-459.
- Price M. L., Hoffer B. J., and Granholm A. C. (1996) Effects of GDNF on fetal septal forebrain transplants in oculo. *Exp Neurol* **141**, 181-189.
- Puduvalli V. K., Sampath D., Bruner J. M., Nangia J., Xu R., and Kyritsis A. P. (2005) TRAIL-induced apoptosis in gliomas is enhanced by Akt-inhibition and is independent of JNK activation. *Apoptosis* **10**, 233-243.
- Purves D., Snider W. D., and Voyvodic J. T. (1988) Trophic regulation of nerve cell morphology and innervation in the autonomic nervous system. *Nature* **336**, 123-128.
- Putcha G. V., Moulder K. L., Golden J. P., Bouillet P., Adams J. A., Strasser A., and Johnson E. M. (2001) Induction of BIM, a proapoptotic BH3-only BCL-2 family member, is critical for neuronal apoptosis. *Neuron* **29**, 615-628.

## **Bibliografía**

---

Putcha G. V., Harris C. A., Moulder K. L., Easton R. M., Thompson C. B., and Johnson E. M. (2002) Intrinsic and extrinsic pathway signaling during neuronal apoptosis: lessons from the analysis of mutant mice. *J Cell Biol* **157**, 441-453.

Putcha G. V., Le S. Y., Frank S., Besirli C. G., Clark K., Chu B. Y., Alix S., Youle R. J., LaMarche A., Maroney A. C., and Johnson E. M. (2003) JNK-mediated BIM phosphorylation potentiates BAX-dependent apoptosis. *Neuron* **38**, 899-914.

Puthalakath H., Huang D. C., O'Reilly L. A., King S. M., and Strasser A. (1999) The proapoptotic activity of the Bcl-2 family member Bim is regulated by interaction with the dynein motor complex. *Mol Cell* **3**, 287-296.

## **R**

---

Radeke M. J., Misko T. P., Hsu C., Herzenberg L. A., and Shooter E. M. (1987) Gene transfer and molecular cloning of the rat nerve growth factor receptor. *Nature* **325**, 593-597.

Ranger A. M., Malynn B. A., and Korsmeyer S. J. (2001) Mouse models of cell death. *Nat Genet* **28**, 113-118.

Ranger A. M., Zha J. P., Harada H., Datta S. R., Danial N. N., Gilmore A. P., Kutok J. L., Le Beau M. M., Greenberg M. E., and Korsmeyer S. J. (2003) Bad-deficient mice develop diffuse large B cell lymphoma. *Proc Natl Acad Sci U S A* **100**, 9324-9329.

Raoul C., Estevez A. G., Nishimune H., Cleveland D. W., deLapeyriere O., Henderson C. E., Haase G., and Pettmann B. (2002) Motoneuron death triggered by a specific pathway downstream of Fas. potentiation by ALS-linked SOD1 mutations. *Neuron* **35**, 1067-1083.

Reddi A. H. (1992) Regulation of cartilage and bone differentiation by bone morphogenetic proteins. *Curr Opin Cell Biol* **4**, 850-855.

Reginato M. J., Mills K. R., Paulus J. K., Lynch D. K., Sgroi D. C., Debnath J., Muthuswamy S. K., and Brugge J. S. (2003) Integrins and EGFR coordinately regulate the pro-apoptotic protein Bim to prevent anoikis. *Nature Cell Biology* **5**, 733-740.

Reiner A., Albin R. L., Anderson K. D., D'Amato C. J., Penney J. B., and Young A. B. (1988) Differential loss of striatal projection neurons in Huntington disease. *Proc Natl Acad Sci U S A* **85**, 5733-5737.

Reiriz J., Espejo M., Ventura F., Ambrosio S., and Alberch J. (1999) Bone morphogenetic protein-2 promotes dissociated effects on the number and differentiation of cultured ventral mesencephalic dopaminergic neurons. *J Neurobiol* **38**, 161-170.

Reiriz J., Holm P. C., Alberch J., and Arenas E. (2002) BMP-2 and cAMP elevation confer locus coeruleus neurons responsiveness to multiple neurotrophic factors. *J Neurobiol* **50**, 291-304.

---

## Bibliografía

- Resibois A. and Rogers J. H. (1992) Calretinin in rat brain: an immunohistochemical study. *Neuroscience* **46**, 101-134.
- Reszka A. A., Seger R., Diltz C. D., Krebs E. G., and Fischer E. H. (1995) Association of mitogen-activated protein kinase with the microtubule cytoskeleton. *Proc Natl Acad Sci U S A* **92**, 8881-8885.
- Rhee S. G. (2001) Regulation of phosphoinositide-specific phospholipase C. *Annu Rev Biochem* **70**, 281-312.
- Riccio A., Ahn S., Davenport C. M., Blendy J. A., and Ginty D. D. (1999) Mediation by a CREB family transcription factor of NGF-dependent survival of sympathetic neurons. *Science* **286**, 2358-2361.
- Richfield E. K., Maguire-Zeiss K. A., Vonkeman H. E., and Voorn P. (1995) Preferential loss of preproenkephalin versus preprotachykinin neurons from the striatum of Huntington's disease patients. *Ann Neurol* **38**, 852-861.
- Rickman D. W. (1999) Parvalbumin immunoreactivity is enhanced by brain-derived neurotrophic factor in organotypic cultures of rat retina. *J Neurobiol* **41**, 376-384.
- Riedl S. J., Renatus M., Schwarzenbacher R., Zhou Q., Sun C., Fesik S. W., Liddington R. C., and Salvesen G. S. (2001) Structural basis for the inhibition of caspase-3 by XIAP. *Cell* **104**, 791-800.
- Rigamonti D., Bauer J. H., De-Fraja C., Conti L., Sipione S., Sciorati C., Clementi E., Hackam A., Hayden M. R., Li Y., Cooper J. K., Ross C. A., Govoni S., Vincenz C., and Cattaneo E. (2000) Wild-type huntingtin protects from apoptosis upstream of caspase-3. *J Neurosci* **20**, 3705-3713.
- Rigamonti D., Sipione S., Goffredo D., Zuccato C., Fossale E., and Cattaneo E. (2001) Huntingtin's neuroprotective activity occurs via inhibition of procaspase-9 processing. *J Biol Chem* **276**, 14545-14548.
- Righi M., Tongiorgi E., and Cattaneo A. (2000) Brain-derived neurotrophic factor (BDNF) induces dendritic targeting of BDNF and tyrosine kinase B mRNAs in hippocampal neurons through a phosphatidylinositol-3 kinase-dependent pathway. *J Neurosci* **20**, 3165-3174.
- Ringstedt T., Lagercrantz H., and Persson H. (1993) Expression of members of the trkB family in the developing postnatal rat brain. *Brain Res Dev Brain Res* **72**, 119-131.
- Rios I., varez-Rodriguez R., Martí E., and Pons S. (2004) Bmp2 antagonizes sonic hedgehog-mediated proliferation of cerebellar granule neurones through Smad5 signalling. *Development* **131**, 3159-3168.

---

## ***Bibliografía***

---

Rodriguez-Tebar A., Jeffrey P. L., Thoenen H., and Barde Y. A. (1989) The survival of chick retinal ganglion cells in response to brain-derived neurotrophic factor depends on their embryonic age. *Dev Biol* **136**, 296-303.

Rong P., Bennie A. M., Epa W. R., and Barrett G. L. (1999) Nerve growth factor determines survival and death of PC12 cells by regulation of the bcl-x, bax, and caspase-3 genes. *J Neurochem* **72**, 2294-2300.

Rosenblad C., Gronborg M., Hansen C., Blom N., Meyer M., Johansen J., Dago L., Kirik D., Patel U. A., Lundberg C., Trono D., Bjorklund A., and Johansen T. E. (2000) In vivo protection of nigral dopamine neurons by lentiviral gene transfer of the novel GDNF-family member neublastin/artemisin. *Mol Cell Neurosci* **15**, 199-214.

Rosenthal A., Goeddel D. V., Nguyen T., Lewis M., Shih A., Laramee G. R., Nikolic K., and Winslow J. W. (1990) Primary structure and biological activity of a novel human neurotrophic factor. *Neuron* **4**, 767-773.

Rosenzweig B. L., Imamura T., Okadome T., Cox G. N., Yamashita H., Tendijke P., Hedin C. H., and Miyazono K. (1995) Cloning and Characterization of A Human Type-II Receptor for Bone Morphogenetic Proteins. *Proc Natl Acad Sci U S A* **92**, 7632-7636.

Ross C. A. (2002) Polyglutamine pathogenesis: emergence of unifying mechanisms for Huntington's disease and related disorders. *Neuron* **35**, 819-822.

Rossi J., Luukko K., Poteryaev D., Laurikainen A., Sun Y. F., Laakso T., Eerikainen S., Tuominen R., Lakso M., Rauvala H., Arumae U., Pasternack M., Saarma M., and Airaksinen M. S. (1999) Retarded growth and deficits in the enteric and parasympathetic nervous system in mice lacking GFR alpha2, a functional neurturin receptor. *Neuron* **22**, 243-252.

Rossler O. G., Giehl K. M., and Thiel G. (2004) Neuroprotection of immortalized hippocampal neurones by brain-derived neurotrophic factor and Raf-1 protein kinase: role of extracellular signal-regulated protein kinase and phosphatidylinositol 3-kinase. *J Neurochem* **88**, 1240-1252.

Ruvolo P. P., Deng X., Carr B. K., and May W. S. (1998) A functional role for mitochondrial protein kinase Calpha in Bcl2 phosphorylation and suppression of apoptosis. *J Biol Chem* **273**, 25436-25442.

---

## **S**

---

Saelens X., Festjens N., Vande W. L., van G. M., van L. G., and Vandenabeele P. (2004) Toxic proteins released from mitochondria in cell death. *Oncogene* **23**, 2861-2874.

Sakurai M., Hayashi T., Abe K., Itoyuama Y., and Tabayashi K. (2001) Induction of phosphatidylinositol 3-kinase and serine-threonine kinase-like immunoreactivity in rabbit spinal cord after transient ischemia. *Neurosci Lett* **302**, 17-20.

---

## Bibliografía

- Sanchez M. P., Silos-Santiago I., Frisen J., He B., Lira S. A., and Barbacid M. (1996) Renal agenesis and the absence of enteric neurons in mice lacking GDNF. *Nature* **382**, 70-73.
- Sanchez S., Sayas C. L., Lim F., az-Nido J., Avila J., and Wandosell F. (2001) The inhibition of phosphatidylinositol-3-kinase induces neurite retraction and activates GSK3. *J Neurochem* **78**, 468-481.
- Sariola H. and Saarma M. (2003) Novel functions and signalling pathways for GDNF. *J Cell Sci* **116**, 3855-3862.
- Sato S., Gobbel G. T., Honkaniemi J., Li Y., Kondo T., Murakami K., Sato M., Copin J. C., Sharp F. R., and Chan P. H. (1998) Decreased expression of bcl-2 and bcl-x mRNA coincides with apoptosis following intracerebral administration of 3-nitropropionic acid. *Brain Res* **808**, 56-64.
- Sattler M., Liang H., Nettesheim D., Meadows R. P., Harlan J. E., Eberstadt M., Yoon H. S., Shuker S. B., Chang B. S., Minn A. J., Thompson C. B., and Fesik S. W. (1997) Structure of Bcl-xL-Bak peptide complex: recognition between regulators of apoptosis. *Science* **275**, 983-986.
- Sattler R., Xiong Z., Lu W. Y., MacDonald J. F., and Tymianski M. (2000) Distinct roles of synaptic and extrasynaptic NMDA receptors in excitotoxicity. *J Neurosci* **20**, 22-33.
- Sawa A., Wiegand G. W., Cooper J., Margolis R. L., Sharp A. H., Lawler J. F., Jr., Greenamyre J. T., Snyder S. H., and Ross C. A. (1999) Increased apoptosis of Huntington disease lymphoblasts associated with repeat length-dependent mitochondrial depolarization. *Nat Med* **5**, 1194-1198.
- Sawada H., Ibi M., Kihara T., Urushitani M., Nakanishi M., Akaike A., and Shimohama S. (2000) Neuroprotective mechanism of glial cell line-derived neurotrophic factor in mesencephalic neurons. *J Neurochem* **74**, 1175-1184.
- Schabitz W. R., Sommer C., Zoder W., Kiessling M., Schwaninger M., and Schwab S. (2000) Intravenous brain-derived neurotrophic factor reduces infarct size and counterregulates Bax and Bcl-2 expression after temporary focal cerebral ischemia. *Stroke* **31**, 2212-2217.
- Schaeffer H. J. and Weber M. J. (1999) Mitogen-activated protein kinases: specific messages from ubiquitous messengers. *Mol Cell Biol* **19**, 2435-2444.
- Schauwecker P. E. (2000) Seizure-induced neuronal death is associated with induction of c-Jun N-terminal kinase and is dependent on genetic background. *Brain Res* **884**, 116-128.
- Schindler A. F. and Poo M. (2000) The neurotrophin hypothesis for synaptic plasticity. *Trends Neurosci* **23**, 639-645.

## **Bibliografía**

---

- Schluesener H. J. and Meyermann R. (1994) Expression of BMP-6, a TGF-beta related morphogenetic cytokine, in rat radial glial cells. *Glia* **12**, 161-164.
- Schneider C., Wicht H., Enderich J., Wegner M., and Rohrer H. (1999) Bone morphogenetic proteins are required in vivo for the generation of sympathetic neurons. *Neuron* **24**, 861-870.
- Schumacher J. M., Short M. P., Hyman B. T., Breakefield X. O., and Isacson O. (1991) Intracerebral implantation of nerve growth factor-producing fibroblasts protects striatum against neurotoxic levels of excitatory amino acids. *Neuroscience* **45**, 561-570.
- Schutte A., Yan Q., Mestres P., and Giehl K. M. (2000) The endogenous survival promotion of axotomized rat corticospinal neurons by brain-derived neurotrophic factor is mediated via paracrine, rather than autocrine mechanisms. *Neurosci Lett* **290**, 185-188.
- Scorrano L., Oakes S. A., Opferman J. T., Cheng E. H., Sorcinelli M. D., Pozzan T., and Korsmeyer S. J. (2003) BAX and BAK regulation of endoplasmic reticulum Ca<sup>2+</sup>: a control point for apoptosis. *Science* **300**, 135-139.
- Scott R. P. and Ibanez C. F. (2001) Determinants of ligand binding specificity in the glial cell line-derived neurotrophic factor family receptor alpha s. *J Biol Chem* **276**, 1450-1458.
- See V. and Loeffler J. P. (2001) Oxidative stress induces neuronal death by recruiting a protease and phosphatase-gated mechanism. *J Biol Chem* **276**, 35049-35059.
- Segal R. A., Takahashi H., and McKay R. D. (1992) Changes in neurotrophin responsiveness during the development of cerebellar granule neurons. *Neuron* **9**, 1041-1052.
- Segal R. A. and Greenberg M. E. (1996) Intracellular signaling pathways activated by neurotrophic factors. *Annu Rev Neurosci* **19**, 463-489.
- Selcher J. C., Nekrasova T., Paylor R., Landreth G. E., and Sweatt J. D. (2001) Mice lacking the ERK1 isoform of MAP kinase are unimpaired in emotional learning. *Learn Mem* **8**, 11-19.
- Sgambato V., Pages C., Rogard M., Besson M. J., and Caboche J. (1998) Extracellular signal-regulated kinase (ERK) controls immediate early gene induction on corticostriatal stimulation. *J Neurosci* **18**, 8814-8825.
- Shalizi A., Lehtinen M., Gaudilliere B., Donovan N., Han J., Konishi Y., and Bonni A. (2003) Characterization of a neurotrophin signaling mechanism that mediates neuron survival in a temporally specific pattern. *J Neurosci* **23**, 7326-7336.
- Sharp A. H., Loev S. J., Schilling G., Li S. H., Li X. J., Bao J., Wagster M. V., Kotzuk J. A., Steiner J. P., Lo A., and . (1995) Widespread expression of Huntington's disease gene (IT15) protein product. *Neuron* **14**, 1065-1074.

---

## Bibliografía

- Sharpe N. A. and Tepper J. M. (1998) Postnatal development of excitatory synaptic input to the rat neostriatum: an electron microscopic study. *Neuroscience* **84**, 1163-1175.
- Shaulian E. and Karin M. (2002) AP-1 as a regulator of cell life and death. *Nat Cell Biol* **4**, E131-E136.
- Shindler K. S., Latham C. B., and Roth K. A. (1997) Bax deficiency prevents the increased cell death of immature neurons in bcl-x-deficient mice. *J Neurosci* **17**, 3112-3119.
- Shindler K. S., Yunker A. M., Cahn R., Zha J., Korsmeyer S. J., and Roth K. A. (1998) Trophic support promotes survival of bcl-x-deficient telencephalic cells in vitro. *Cell Death Differ* **5**, 901-910.
- Shinjyo T., Kuribara R., Inukai T., Hosoi H., Kinoshita T., Miyajima A., Houghton P. J., Look A. T., Ozawa K., and Inaba T. (2001) Downregulation of Bim, a proapoptotic relative of Bcl-2, is a pivotal step in cytokine-initiated survival signaling in murine hematopoietic progenitors. *Mol Cell Biol* **21**, 854-864.
- Shinoda S., Schindler C. K., Meller R., So N. K., Araki T., Yamamoto A., Lan J. Q., Taki W., Simon R. P., and Henshall D. C. (2004) Bim regulation may determine hippocampal vulnerability after injurious seizures and in temporal lobe epilepsy. *J Clin Invest* **113**, 1059-1068.
- Shults C. W., Kimber T., and Altar C. A. (1995) BDNF attenuates the effects of intrastriatal injection of 6-hydroxydopamine. *Neuroreport* **6**, 1109-1112.
- Simons K. and Toomre D. (2000) Lipid rafts and signal transduction. *Nat Rev Mol Cell Biol* **1**, 31-39.
- Singaraja R. R., Hadano S., Metzler M., Givan S., Wellington C. L., Warby S., Yanai A., Gutekunst C. A., Leavitt B. R., Yi H., Fichter K., Gan L., McCutcheon K., Chopra V., Michel J., Hersch S. M., Ikeda J. E., and Hayden M. R. (2002) HIP14, a novel ankyrin domain-containing protein, links huntingtin to intracellular trafficking and endocytosis. *Hum Mol Genet* **11**, 2815-2828.
- Slee E. A., Harte M. T., Kluck R. M., Wolf B. B., Casiano C. A., Newmeyer D. D., Wang H. G., Reed J. C., Nicholson D. W., Alnemri E. S., Green D. R., and Martin S. J. (1999) Ordering the cytochrome c-initiated caspase cascade: hierarchical activation of caspases-2, -3, -6, -7, -8, and -10 in a caspase-9-dependent manner. *J Cell Biol* **144**, 281-292.
- Smith Y., Bevan M. D., Shink E., and Bolam J. P. (1998) Microcircuitry of the direct and indirect pathways of the basal ganglia. *Neuroscience* **86**, 353-387.
- Snider W. D. (1994) Functions of the neurotrophins during nervous system development: what the knockouts are teaching us. *Cell* **77**, 627-638.

## **Bibliografía**

---

- Soderstrom S., Bengtsson H., and Ebendal T. (1996) Expression of serine/threonine kinase receptors including the bone morphogenetic factor type II receptor in the developing and adult rat brain. *Cell Tissue Res* **286**, 269-279.
- Sofroniew M. V., Howe C. L., and Mobley W. C. (2001) Nerve growth factor signaling, neuroprotection, and neural repair. *Annu Rev Neurosci* **24**, 1217-1281.
- Sole C., Dolcet X., Segura M. F., Gutierrez H., az-Meco M. T., Gozzelino R., Sanchis D., Bayascas J. R., Gallego C., Moscat J., Davies A. M., and Comella J. X. (2004) The death receptor antagonist FAIM promotes neurite outgrowth by a mechanism that depends on ERK and NF-kapp B signaling. *J Cell Biol* **167**, 479-492.
- Soler R. M., Egea J., Mintenig G. M., Sanz-Rodriguez C., Iglesias M., and Comella J. X. (1998) Calmodulin is involved in membrane depolarization-mediated survival of motoneurons by phosphatidylinositol-3 kinase- and MAPK-independent pathways. *J Neurosci* **18**, 1230-1239.
- Soler R. M., Dolcet X., Encinas M., Egea J., Bayascas J. R., and Comella J. X. (1999) Receptors of the glial cell line-derived neurotrophic factor family of neurotrophic factors signal cell survival through the phosphatidylinositol 3-kinase pathway in spinal cord motoneurons. *J Neurosci* **19**, 9160-9169.
- Solloway M. J., Dudley A. T., Bikoff E. K., Lyons K. M., Hogan B. L. M., and Robertson E. J. (1998) Mice lacking Bmp6 function. *Developmental Genetics* **22**, 321-339.
- Song Q., Mehler M. F., and Kessler J. A. (1998) Bone morphogenetic proteins induce apoptosis and growth factor dependence of cultured sympathoadrenal progenitor cells. *Dev Biol* **196**, 119-127.
- Spina M. B., Squinto S. P., Miller J., Lindsay R. M., and Hyman C. (1992) Brain-derived neurotrophic factor protects dopamine neurons against 6-hydroxydopamine and N-methyl-4-phenylpyridinium ion toxicity: involvement of the glutathione system. *J Neurochem* **59**, 99-106.
- Spreafico R., Frassoni C., Arcelli P., Selvaggio M., and De B. S. (1995) In situ labeling of apoptotic cell death in the cerebral cortex and thalamus of rats during development. *J Comp Neurol* **363**, 281-295.
- Srinivasula S. M., Ahmad M., Fernandes-Alnemri T., and Alnemri E. S. (1998) Autoactivation of procaspase-9 by Apaf-1-mediated oligomerization. *Mol Cell* **1**, 949-957.
- Srivastava R. K., Srivastava A. R., Korsmeyer S. J., Nesterova M., Cho-Chung Y. S., and Longo D. L. (1998) Involvement of microtubules in the regulation of Bcl2 phosphorylation and apoptosis through cyclic AMP-dependent protein kinase. *Mol Cell Biol* **18**, 3509-3517.

Standaert D. G., Landwehrmeyer G. B., Kerner J. A., Penney J. B., and Young A. B. (1996) Expression of NMDAR2D glutamate receptor subunit mRNA in neurochemically identified interneurons in the rat neostriatum, neocortex and hippocampus. *Brain Res Mol Brain Res* **42**, 89-102.

Stroppolo A., Guinea B., Tian C., Sommer J., and Ehrlich M. E. (2001) Role of phosphatidylinositol 3-kinase in brain-derived neurotrophic factor-induced DARPP-32 expression in medium size spiny neurons in vitro. *J Neurochem* **79**, 1027-1032.

Suhara T., Mano T., Oliveira B. E., and Walsh K. (2001) Phosphatidylinositol 3-kinase/Akt signaling controls endothelial cell sensitivity to Fas-mediated apoptosis via regulation of FLICE-inhibitory protein (FLIP). *Circ Res* **89**, 13-19.

Susin S. A., Lorenzo H. K., Zamzami N., Marzo I., Snow B. E., Brothers G. M., Mangion J., Jacotot E., Costantini P., Loeffler M., Larochette N., Goodlett D. R., Aebersold R., Siderovski D. P., Penninger J. M., and Kroemer G. (1999) Molecular characterization of mitochondrial apoptosis-inducing factor. *Nature* **397**, 441-446.

---

**T**

---

Tabrizi S. J., Cleeter M. W., Xuereb J., Taanman J. W., Cooper J. M., and Schapira A. H. (1999) Biochemical abnormalities and excitotoxicity in Huntington's disease brain. *Ann Neurol* **45**, 25-32.

Takase M., Imamura T., Sampath T. K., Takeda K., Ichijo H., Miyazono K., and Kawabata M. (1998) Induction of Smad6 mRNA by bone morphogenetic proteins. *Biochem Biophys Res Commun* **244**, 26-29.

Tamatani M., Ogawa S., and Tohyama M. (1998) Roles of Bcl-2 and caspases in hypoxia-induced neuronal cell death: a possible neuroprotective mechanism of peptide growth factors. *Mol Brain Res* **58**, 27-39.

Tamatani M., Che Y. H., Matsuzaki H., Ogawa S., Okado H., Miyake S., Mizuno T., and Tohyama M. (1999) Tumor necrosis factor induces Bcl-2 and Bcl-x expression through NFκB activation in primary hippocampal neurons. *J Biol Chem* **274**, 8531-8538.

Tartaglia L. A., Pennica D., and Goeddel D. V. (1993) Ligand passing: the 75-kDa tumor necrosis factor (TNF) receptor recruits TNF for signaling by the 55-kDa TNF receptor. *J Biol Chem* **268**, 18542-18548.

Thandi S., Blank J. L., and Challiss R. A. (2002) Group-I metabotropic glutamate receptors, mGlu1a and mGlu5a, couple to extracellular signal-regulated kinase (ERK) activation via distinct, but overlapping, signalling pathways. *J Neurochem* **83**, 1139-1153.

The Huntington's Disease Collaborative Research Group (1993) A novel gene containing a trinucleotide repeat that is expanded and unstable on Huntington's disease chromosomes. *Cell* **72**, 971-983.

## **Bibliografía**

---

- Thoenen H., Barde Y. A., Davies A. M., and Johnson J. E. (1987) Neurotrophic factors and neuronal death. *Ciba Found Symp* **126**, 82-95.
- Thoenen H. (2000) Neurotrophins and activity-dependent plasticity. *Prog Brain Res* **128**, 183-191.
- Thoenen H. and Sendtner M. (2002) Neurotrophins: from enthusiastic expectations through sobering experiences to rational therapeutic approaches. *Nat Neurosci* **5 Suppl**, 1046-1050.
- Thompson J., Dolcet X., Hilton M., Tolcos M., and Davies A. M. (2004) HGF promotes survival and growth of maturing sympathetic neurons by PI-3 kinase- and MAP kinase-dependent mechanisms. *Mol Cell Neurosci* **27**, 441-452.
- Thornberry N. A., Rano T. A., Peterson E. P., Rasper D. M., Timkey T., Garcia-Calvo M., Houtzager V. M., Nordstrom P. A., Roy S., Vaillancourt J. P., Chapman K. T., and Nicholson D. W. (1997) A combinatorial approach defines specificities of members of the caspase family and granzyme B. Functional relationships established for key mediators of apoptosis. *J Biol Chem* **272**, 17907-17911.
- Timmusk T., Belluardo N., Metsis M., and Persson H. (1993) Widespread and developmentally regulated expression of neurotrophin-4 mRNA in rat brain and peripheral tissues. *Eur J Neurosci* **5**, 605-613.
- Tomac A., Lindqvist E., Lin L. F., Ogren S. O., Young D., Hoffer B. J., and Olson L. (1995) Protection and repair of the nigrostriatal dopaminergic system by GDNF in vivo. *Nature* **373**, 335-339.
- Tomac A. C., Agulnick A. D., Haughey N., Chang C. F., Zhang Y. J., Backman C., Morales M., Mattson M. P., Wang Y., Westphal H., and Hoffer B. J. (2002) Effects of cerebral ischemia in mice deficient in Persephin. *Proc Natl Acad Sci U S A* **99**, 9521-9526.
- Tomizawa K., Matsui H., Kondo E., Miyamoto K., Tokuda M., Itano T., Nagahata S., Akagi T., and Hatase O. (1995) Developmental alteration and neuron-specific expression of bone morphogenetic protein-6 (BMP-6) mRNA in rodent brain. *Brain Res Mol Brain Res* **28**, 122-128.
- Tran S. E., Holmstrom T. H., Ahonen M., Kahari V. M., and Eriksson J. E. (2001) MAPK/ERK overrides the apoptotic signaling from Fas, TNF, and TRAIL receptors. *J Biol Chem* **276**, 16484-16490.
- Treanor J. J., Goodman L., de Sauvage F., Stone D. M., Poulsen K. T., Beck C. D., Gray C., Armanini M. P., Pollock R. A., Hefti F., Phillips H. S., Goddard A., Moore M. W., Buj-Bello A., Davies A. M., Asai N., Takahashi M., Vandlen R., Henderson C. E., and Rosenthal A. (1996) Characterization of a multicomponent receptor for GDNF. *Nature* **382**, 80-83.

---

## Bibliografía

- Trupp M., Ryden M., Jornvall H., Funakoshi H., Timmusk T., Arenas E., and Ibanez C. F. (1995) Peripheral expression and biological activities of GDNF, a new neurotrophic factor for avian and mammalian peripheral neurons. *J Cell Biol* **130**, 137-148.
- Trupp M., Arenas E., Fainzilber M., Nilsson A. S., Sieber B. A., Grigoriou M., Kilkenny C., Salazar-Grueso E., Pachnis V., and Arumae U. (1996) Functional receptor for GDNF encoded by the c-ret proto-oncogene. *Nature* **381**, 785-789.
- Trupp M., Scott R., Whittemore S. R., and Ibanez C. F. (1999) Ret-dependent and -independent mechanisms of glial cell line-derived neurotrophic factor signaling in neuronal cells. *J Biol Chem* **274**, 20885-20894.
- Tseng J. L., Baetge E. E., Zurn A. D., and Aebscher P. (1997) GDNF reduces drug-induced rotational behavior after medial forebrain bundle transection by a mechanism not involving striatal dopamine. *J Neurosci* **17**, 325-333.
- Tsui-Pierchala B., Milbrandt J., and Johnson E. M. (2002a) NGF utilizes c-Ret via a novel GFL-independent, inter-RTK signaling mechanism to maintain the trophic status of mature sympathetic neurons. *Neuron* **33**, 261-273.
- Tsui-Pierchala B. A., Putcha G. V., and Johnson E. M., Jr. (2000) Phosphatidylinositol 3-kinase is required for the trophic, but not the survival-promoting, actions of NGF on sympathetic neurons. *J Neurosci* **20**, 7228-7237.
- Tsui-Pierchala B. A., Ahrens R. C., Crowder R. J., Milbrandt J., and Johnson E. M. (2002b) The long and short isoforms of ret function as independent signaling complexes. *J Biol Chem* **277**, 34618-34625.
- Tsui-Pierchala B. A., Encinas M., Milbrandt J., and Johnson E. M. (2002c) Lipid rafts in neuronal signaling and function. *Trends Neurosci* **25**, 412-417.
- Tsukahara T., Takeda M., Shimohama S., Ohara O., and Hashimoto N. (1995) Effects of brain-derived neurotrophic factor on 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine-induced parkinsonism in monkeys. *Neurosurgery* **37**, 733-739.
- Tsuneizumi K., Nakayama T., Kamoshida Y., Kornberg T. B., Christian J. L., and Tabata T. (1997) Daughters against dpp modulates dpp organizing activity in Drosophila wing development. *Nature* **389**, 627-631.
- 
- V
- Vahlsing H. L., Hagg T., Spencer M., Conner J. M., Manthorpe M., and Varon S. (1991) Dose-Dependent Responses to Nerve Growth-Factor by Adult-Rat Cholinergic Medial Septum and Neostriatum Neurons. *Brain Research* **552**, 320-329.
- Vaillant A. R., Mazzoni I., Tudan C., Boudreau M., Kaplan D. R., and Miller F. D. (1999) Depolarization and neurotrophins converge on the phosphatidylinositol 3-kinase-Akt pathway to synergistically regulate neuronal survival. *J Cell Biol* **146**, 955-966.

## **Bibliografía**

---

- van der Kooy D. and Fishell G. (1987) Neuronal birthdate underlies the development of striatal compartments. *Brain Res* **401**, 155-161.
- van Weeren P. C., de Bruyn K. M., de Vries-Smits A. M., van L. J., and Burgering B. M. (1998) Essential role for protein kinase B (PKB) in insulin-induced glycogen synthase kinase 3 inactivation. Characterization of dominant-negative mutant of PKB. *J Biol Chem* **273**, 13150-13156.
- Vanhaesebroeck B. and Waterfield M. D. (1999) Signaling by distinct classes of phosphoinositide 3-kinases. *Exp Cell Res* **253**, 239-254.
- Vanhoutte P., Barnier J. V., Guibert B., Pages C., Besson M. J., Hipskind R. A., and Caboche J. (1999) Glutamate induces phosphorylation of Elk-1 and CREB, along with c-fos activation, via an extracellular signal-regulated kinase-dependent pathway in brain slices. *Mol Cell Biol* **19**, 136-146.
- Vaux D. L., Cory S., and Adams J. M. (1988) Bcl-2 Gene Promotes Hematopoietic-Cell Survival and Cooperates with C-Myc to Immortalize Pre-B-Cells. *Nature* **335**, 440-442.
- Velier J., Kim M., Schwarz C., Kim T. W., Sapp E., Chase K., Aronin N., and DiFiglia M. (1998) Wild-type and mutant huntingtins function in vesicle trafficking in the secretory and endocytic pathways. *Exp Neurol* **152**, 34-40.
- Venero J. L., Beck K. D., and Hefti F. (1994) 6-Hydroxydopamine lesions reduce BDNF mRNA levels in adult rat brain substantia nigra. *Neuroreport* **5**, 429-432.
- Ventimiglia R., Mather P. E., Jones B. E., and Lindsay R. M. (1995) The neurotrophins BDNF, NT-3 and NT-4/5 promote survival and morphological and biochemical differentiation of striatal neurons in vitro. *Eur J Neurosci* **7**, 213-222.
- Verma S., Zhao L. J., and Chinnadurai G. (2001) Phosphorylation of the pro-apoptotic protein BIK: mapping of phosphorylation sites and effect on apoptosis. *J Biol Chem* **276**, 4671-4676.
- Vila M., Jackson-Lewis V., Vukosavic S., Djaldetti R., Liberatore G., Offen D., Korsmeyer S. J., and Przedborski S. (2001) Bax ablation prevents dopaminergic neurodegeneration in the 1-methyl- 4-phenyl-1,2,3,6-tetrahydropyridine mouse model of Parkinson's disease. *Proc Natl Acad Sci U S A* **98**, 2837-2842.
- Vila M. and Przedborski S. (2003) Targeting programmed cell death in neurodegenerative diseases. *Nat Rev Neurosci* **4**, 365-375.
- Vincent S. R., Johansson O., Hokfelt T., Skirboll L., Elde R. P., Terenius L., Kimmel J., and Goldstein M. (1983) NADPH-diaphorase: a selective histochemical marker for striatal neurons containing both somatostatin- and avian pancreatic polypeptide (APP)-like immunoreactivities. *J Comp Neurol* **217**, 252-263.

Vis J. C., Verbeek M. M., De Waal R. M., Ten Donkelaar H. J., and Kremer B. (2001) The mitochondrial toxin 3-nitropropionic acid induces differential expression patterns of apoptosis-related markers in rat striatum. *Neuropathol Appl Neurobiol* **27**, 68-76.

Viswanath V., Wu Y., Boonplueang R., Chen S., Stevenson F. F., Yantiri F., Yang L., Beal M. F., and Andersen J. K. (2001) Caspase-9 activation results in downstream caspase-8 activation and bid cleavage in 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine-induced Parkinson's disease. *J Neurosci* **21**, 9519-9528.

von Bartheld C. S., Byers M. R., Williams R., and Bothwell M. (1996) Anterograde transport of neurotrophins and axodendritic transfer in the developing visual system. *Nature* **379**, 830-833.

Voorn P., Kalsbeek A., Jorritsma-Byham B., and Groenewegen H. J. (1988) The pre- and postnatal development of the dopaminergic cell groups in the ventral mesencephalon and the dopaminergic innervation of the striatum of the rat. *Neuroscience* **25**, 857-887.

---

**W**

Wagey R., Pelech S. L., Duronio V., and Krieger C. (1998) Phosphatidylinositol 3-kinase: increased activity and protein level in amyotrophic lateral sclerosis. *J Neurochem* **71**, 716-722.

Wajant H. and Scheurich P. (2001) Tumor necrosis factor receptor-associated factor (TRAF) 2 and its role in TNF signaling. *Int J Biochem Cell Biol* **33**, 19-32.

Walton M. R. and Dragunow I. (2000) Is CREB a key to neuronal survival? *Trends Neurosci* **23**, 48-53.

Wang C. Y., Ni J., Jiang H., Hsu T. A., Dugich-Djordjevic M., Feng L., Zhang M., Mei L., Gentz R., and Lu B. (1998) Cloning and characterization of glial cell line-derived neurotrophic factor receptor-B: a novel receptor for members of glial cell line-derived neurotrophic factor family of neurotrophic factors. *Neuroscience* **83**, 7-14.

Wang J. Q., Tang Q., Parelkar N. K., Liu Z., Samdani S., Choe E. S., Yang L., and Mao L. (2004) Glutamate signaling to Ras-MAPK in striatal neurons: mechanisms for inducible gene expression and plasticity. *Mol Neurobiol* **29**, 1-14.

Wang K., Yin X. M., Chao D. T., Milliman C. L., and Korsmeyer S. J. (1996) BID: a novel BH3 domain-only death agonist. *Genes Dev* **10**, 2859-2869.

Wang X. (2001) The expanding role of mitochondria in apoptosis. *Genes Dev* **15**, 2922-2933.

Wang Y., Chang C. F., Morales M., Chou J., Chen H. L., Chiang Y. H., Lin S. Z., Cadet J. L., Deng X., Wang J. Y., Chen S. Y., Kaplan P. L., and Hoffer B. J. (2001) Bone morphogenetic protein-6 reduces ischemia-induced brain damage in rats. *Stroke* **32**, 2170-2178.

## **Bibliografía**

---

- Watson F. L., Heerssen H. M., Bhattacharyya A., Klesse L., Lin M. Z., and Segal R. A. (2001) Neurotrophins use the Erk5 pathway to mediate a retrograde survival response. *Nat Neurosci* **4**, 981-988.
- Wei H., Qin Z. H., Senatorov V. V., Wei W., Wang Y., Qian Y., and Chuang D. M. (2002) Lithium suppresses excitotoxicity-induced striatal lesions in a rat model of Huntington's disease. *Neuroscience* **106**, 603-612.
- Wei M. C., Lindsten T., Mootha V. K., Weiler S., Gross A., Ashiya M., Thompson C. B., and Korsmeyer S. J. (2000) tBID, a membrane-targeted death ligand, oligomerizes BAK to release cytochrome c. *Genes Dev* **14**, 2060-2071.
- Wei M. C., Zong W. X., Cheng E. H. Y., Lindsten T., Panoutsakopoulou V., Ross A. J., Roth K. A., MacGregor G. R., Thompson C. B., and Korsmeyer S. J. (2001) Proapoptotic BAX and BAK: A requisite gateway to mitochondrial dysfunction and death. *Science* **292**, 727-730.
- Wenzel A., Fritschy J. M., Mohler H., and Benke D. (1997) NMDA receptor heterogeneity during postnatal development of the rat brain: differential expression of the NR2A, NR2B, and NR2C subunit proteins. *J Neurochem* **68**, 469-478.
- Weston C. R. and Davis R. J. (2002) The JNK signal transduction pathway. *Curr Opin Genet Dev* **12**, 14-21.
- Weston C. R., Balmanno K., Chalmers C., Hadfield K., Molton S. A., Ley R., Wagner E. F., and Cook S. J. (2003) Activation of ERK1/2 by Delta Raf-1 : ER\* represses bim expression independently of the JNK or PI3K pathways. *Oncogene* **22**, 1281-1293.
- White F. A., Keller-Peck C. R., Knudson C. M., Korsmeyer S. J., and Snider W. D. (1998) Widespread elimination of naturally occurring neuronal death in Bax-deficient mice. *J Neurosci* **18**, 1428-1439.
- White J. K., Auerbach W., Duyao M. P., Vonsattel J. P., Gusella J. F., Joyner A. L., and MacDonald M. E. (1997) Huntingtin is required for neurogenesis and is not impaired by the Huntington's disease CAG expansion. *Nat Genet* **17**, 404-410.
- Whitfield J., Neame S. J., Paquet L., Bernard O., and Ham J. (2001) Dominant-negative c-Jun promotes neuronal survival by reducing BIM expression and inhibiting mitochondrial cytochrome c release. *Neuron* **29**, 629-643.
- Wick A., Wick W., Waltenberger J., Weller M., Dichgans J., and Schulz J. B. (2002) Neuroprotection by hypoxic preconditioning requires sequential activation of vascular endothelial growth factor receptor and Akt. *J Neurosci* **22**, 6401-6407.
- Widenfalk J., Nosrat C., Tomac A., Westphal H., Hoffer B., and Olson L. (1997) Neurturin and glial cell line-derived neurotrophic factor receptor-beta (GDNFR-beta), novel proteins related to GDNF and GDNFR-alpha with specific cellular patterns of

---

## Bibliografía

expression suggesting roles in the developing and adult nervous system and in peripheral organs. *J Neurosci* **17**, 8506-8519.

Widmer H. R. and Hefti F. (1994) Stimulation of GABAergic neuron differentiation by NT-4/5 in cultures of rat cerebral cortex. *Brain Res Dev Brain Res* **80**, 279-284.

Winnier G., Blessing M., Labosky P. A., and Hogan B. L. M. (1995) Bone Morphogenetic Protein-4 Is Required for Mesoderm Formation and Patterning in the Mouse. *Genes Develop* **9**, 2105-2116.

Withers G. S., Higgins D., Charette M., and Bunker G. (2000) Bone morphogenetic protein-7 enhances dendritic growth and receptivity to innervation in cultured hippocampal neurons. *Eur J Neurosci* **12**, 106-116.

Wolf B. B. and Green D. R. (1999) Suicidal tendencies: apoptotic cell death by caspase family proteinases. *J Biol Chem* **274**, 20049-20052.

Wong L. F., Ralph G. S., Walmsley L. E., Bienemann A. S., Parham S., Kingsman S. M., Uney J. B., and Mazarakis N. D. (2005) Lentiviral-mediated delivery of Bcl-2 or GDNF protects against excitotoxicity in the rat hippocampus. *Mol Ther* **11**, 89-95.

Wozney J. M. (1998) The bone morphogenetic protein family: multifunctional cellular regulators in the embryo and adult. *Eur J Oral Sci* **106 Suppl 1**, 160-166.

Wu X., Zhu D., Jiang X., Okagaki P., Mearrow K., Zhu G., McCall S., Banaudha K., Lipsky R. H., and Marini A. M. (2004) AMPA protects cultured neurons against glutamate excitotoxicity through a phosphatidylinositol 3-kinase-dependent activation in extracellular signal-regulated kinase to upregulate BDNF gene expression. *J Neurochem* **90**, 807-818.

Wyllie R. G., Murray G., HEPTINST.RH, Hill G. S., and Ramsden P. W. (1972) Experimental Papillary Necrosis of Kidney .3. Effects of Reserpine and Other Pharmacologic Agents on Lesion. *American Journal of Pathology* **68**, 235-&.

Wyss-Coray T. and Mucke L. (2002) Inflammation in neurodegenerative disease--a double-edged sword. *Neuron* **35**, 419-432.

---

## X

Xia Z., Dickens M., Raingeaud J., Davis R. J., and Greenberg M. E. (1995) Opposing effects of ERK and JNK-p38 MAP kinases on apoptosis. *Science* **270**, 1326-1331.

Xiang H., Kinoshita Y., Knudson C. M., Korsmeyer S. J., Schwartzkroin P. A., and Morrison R. S. (1998) Bax involvement in p53-mediated neuronal cell death. *J Neurosci* **18**, 1363-1373.

## Bibliografía

---

### Y

---

- Yabe T., Samuels I., and Schwartz J. P. (2002) Bone morphogenetic proteins BMP-6 and BMP-7 have differential effects on survival and neurite outgrowth of cerebellar granule cell neurons. *J Neurosci Res* **68**, 161-168.
- Yacoubian T. A. and Lo D. C. (2000) Truncated and full-length TrkB receptors regulate distinct modes of dendritic growth. *Nat Neurosci* **3**, 342-349.
- Yamada M., Ohnishi H., Sano S., Nakatani A., Ikeuchi T., and Hatanaka H. (1997) Insulin receptor substrate (IRS)-1 and IRS-2 are tyrosine-phosphorylated and associated with phosphatidylinositol 3-kinase in response to brain-derived neurotrophic factor in cultured cerebral cortical neurons. *J Biol Chem* **272**, 30334-30339.
- Yamada M., Tanabe K., Wada K., Shimoke K., Ishikawa Y., Ikeuchi T., Koizumi S., and Hatanaka H. (2001) Differences in survival-promoting effects and intracellular signaling properties of BDNF and IGF-1 in cultured cerebral cortical neurons. *J Neurochem* **78**, 940-951.
- Yamada M. K., Nakanishi K., Ohba S., Nakamura T., Ikegaya Y., Nishiyama N., and Matsuki N. (2002) Brain-derived neurotrophic factor promotes the maturation of GABAergic mechanisms in cultured hippocampal neurons. *J Neurosci* **22**, 7580-7585.
- Yamagishi S., Matsumoto T., Yokomaku D., Hatanaka H., Shimoke K., Yamada M., and Ikeuchi T. (2003) Comparison of inhibitory effects of brain-derived neurotrophic factor and insulin-like growth factor on low potassium-induced apoptosis and activation of p38 MAPK and c-Jun in cultured cerebellar granule neurons. *Brain Res Mol Brain Res* **119**, 184-191.
- Yamaguchi H. and Wang H. G. (2001) The protein kinase PKB/Akt regulates cell survival and apoptosis by inhibiting Bax conformational change. *Oncogene* **20**, 7779-7786.
- Yamamoto A., Lucas J. J., and Hen R. (2000) Reversal of neuropathology and motor dysfunction in a conditional model of Huntington's disease. *Cell* **101**, 57-66.
- Yamamoto K., Ichijo H., and Korsmeyer S. J. (1999) BCL-2 is phosphorylated and inactivated by an ASK1/Jun N-terminal protein kinase pathway normally activated at G(2)/M. *Mol Cell Biol* **19**, 8469-8478.
- Yamamoto Y. and Oelgeschlager M. (2004) Regulation of bone morphogenetic proteins in early embryonic development. *Naturwissenschaften* **91**, 519-534.
- Yamashima T. (2000) Implication of cysteine proteases calpain, cathepsin and caspase in ischemic neuronal death of primates. *Prog Neurobiol* **62**, 273-295.

---

## Bibliografía

- Yamashita H., Tendijke P., Huylebroeck D., Sampath T. K., Andries M., Smith J. C., Hedin C. H., and Miyazono K. (1995) Osteogenic Protein-1 Binds to Activin Type-Ii Receptors and Induces Certain Activin-Like Effects. *J Cell Biol* **130**, 217-226.
- Yan Q., Elliott J., and Snider W. D. (1992) Brain-derived neurotrophic factor rescues spinal motor neurons from axotomy-induced cell death. *Nature* **360**, 753-755.
- Yan Q., Rosenfeld R. D., Matheson C. R., Hawkins N., Lopez O. T., Bennett L., and Welcher A. A. (1997) Expression of brain-derived neurotrophic factor protein in the adult rat central nervous system. *Neuroscience* **78**, 431-448.
- Yanagisawa M., Nakashima K., Takeda K., Ochiai W., Takizawa T., Ueno M., Takizawa M., Shibuya H., and Taga T. (2001) Inhibition of BMP2-induced, TAK1 kinase-mediated neurite outgrowth by Smad6 and Smad7. *Genes Cells* **6**, 1091-1099.
- Yang D. D., Kuan C. Y., Whitmarsh A. J., Rincon M., Zheng T. S., Davis R. J., Rakic P., and Flavell R. A. (1997) Absence of excitotoxicity-induced apoptosis in the hippocampus of mice lacking the Jnk3 gene. *Nature* **389**, 865-870.
- Yang J. M., Vassil A. D., and Hait W. N. (2001) Activation of phospholipase C induces the expression of the multidrug resistance (MDR1) gene through the Raf-MAPK pathway. *Mol Pharmacol* **60**, 674-680.
- Yang L., Mao L., Tang Q., Samdani S., Liu Z., and Wang J. Q. (2004) A Novel Ca<sup>2+</sup>-independent signaling pathway to extracellular signal-regulated protein kinase by coactivation of NMDA receptors and metabotropic glutamate receptor 5 in neurons. *J Neurosci* **24**, 10846-10857.
- Ye H., Kuruvilla R., Zweifel L. S., and Ginty D. D. (2003) Evidence in support of signaling endosome-based retrograde survival of sympathetic neurons. *Neuron* **39**, 57-68.
- Yi S. E., Daluiski A., Pederson R., Rosen V., and Lyons K. M. (2000) The type I BMP receptor BMPRIB is required for chondrogenesis in the mouse limb. *Development* **127**, 621-630.
- Yin X. M., Wang K., Gross A., Zhao Y. G., Zinkel S., Klocke B., Roth K. A., and Korsmeyer S. J. (1999) Bid-deficient mice are resistant to Fas-induced hepatocellular apoptosis. *Nature* **400**, 886-891.
- York R. D., Molliver D. C., Grewal S. S., Stenberg P. E., McCleskey E. W., and Stork P. J. (2000) Role of phosphoinositide 3-kinase and endocytosis in nerve growth factor-induced extracellular signal-regulated kinase activation via Ras and Rap1. *Mol Cell Biol* **20**, 8069-8083.
- Yu J., Zhang L., Hwang P. M., Kinzler K. W., and Vogelstein B. (2001) PUMA induces the rapid apoptosis of colorectal cancer cells. *Mol Cell* **7**, 673-682.

## **Bibliografía**

---

Yu T., Scully S., Yu Y., Fox G. M., Jing S., and Zhou R. (1998) Expression of GDNF family receptor components during development: implications in the mechanisms of interaction. *J Neurosci* **18**, 4684-4696.

Yuan J., Shaham S., Ledoux S., Ellis H. M., and Horvitz H. R. (1993) The *C. elegans* cell death gene ced-3 encodes a protein similar to mammalian interleukin-1 beta-converting enzyme. *Cell* **75**, 641-652.

Yuan J. and Yankner B. A. (2000) Apoptosis in the nervous system. *Nature* **407**, 802-809.

Yuan J., Lipinski M., and Degterev A. (2003) Diversity in the mechanisms of neuronal cell death. *Neuron* **40**, 401-413.

Yurek D. M. and Fletcher-Turner A. (2001) Differential expression of GDNF, BDNF, and NT-3 in the aging nigrostriatal system following a neurotoxic lesion. *Brain Res* **891**, 228-235.

## **Z**

---

Zeron M. M., Hansson O., Chen N., Wellington C. L., Leavitt B. R., Brundin P., Hayden M. R., and Raymond L. A. (2002) Increased sensitivity to N-methyl-D-aspartate receptor-mediated excitotoxicity in a mouse model of Huntington's disease. *Neuron* **33**, 849-860.

Zeron M. M., Fernandes H. B., Krebs C., Shehadeh J., Wellington C. L., Leavitt B. R., Bainbridge K. G., Hayden M. R., and Raymond L. A. (2004) Potentiation of NMDA receptor-mediated excitotoxicity linked with intrinsic apoptotic pathway in YAC transgenic mouse model of Huntington's disease. *Mol Cell Neurosci* **25**, 469-479.

Zha J., Harada H., Yang E., Jockel J., and Korsmeyer S. J. (1996) Serine phosphorylation of death agonist BAD in response to survival factor results in binding to 14-3-3 not BCL-X(L). *Cell* **87**, 619-628.

Zhang D., Mehler M. F., Song Q., and Kessler J. A. (1998) Development of bone morphogenetic protein receptors in the nervous system and possible roles in regulating trkB expression. *J Neurosci* **18**, 3314-3326.

Zhang H., Heim J., and Meyhack B. (1998) Redistribution of Bax from cytosol to membranes is induced by apoptotic stimuli and is an early step in the apoptotic pathway. *Biochem Biophys Res Commun* **251**, 454-459.

Zhang H. B. and Bradley A. (1996) Mice deficient for BMP2 are nonviable and have defects in amnion chorion and cardiac development. *Development* **122**, 2977-2986.

Zhang Y., Moheban D. B., Conway B. R., Bhattacharyya A., and Segal R. A. (2000) Cell surface TrkB receptors mediate NGF-induced survival while internalized receptors regulate NGF-induced differentiation. *J Neurosci* **20**, 5671-5678.

---

## Bibliografía

- Zhao G. Q. (2003) Consequences of knocking out BMP signaling in the mouse. *Genesis* **35**, 43-56.
- Zhao M., Eaton J. W., and Brunk U. T. (2001) Bcl-2 phosphorylation is required for inhibition of oxidative stress-induced lysosomal leak and ensuing apoptosis. *FEBS Lett* **509**, 405-412.
- Zheng T. S., Hunot S., Kuida K., Momoi T., Srinivasan A., Nicholson D. W., Lazebnik Y., and Flavell R. A. (2000) Deficiency in caspase-9 or caspase-3 induces compensatory caspase activation. *Nat Med* **6**, 1241-1247.
- Zong W. X., Lindsten T., Ross A. J., MacGregor G. R., and Thompson C. B. (2001) BH3-only proteins that bind pro-survival Bcl-2 family members fail to induce apoptosis in the absence of Bax and Bak. *Genes Dev* **15**, 1481-1486.
- Zubenko G. S., Stiffler J. S., Hughes H. B., and Martinez A. J. (1999) Reductions in brain phosphatidylinositol kinase activities in Alzheimer's disease. *Biol Psychiatry* **45**, 731-736.
- Zuccato C., Ciarmmola A., Rigamonti D., Leavitt B. R., Goffredo D., Conti L., MacDonald M. E., Friedlander R. M., Silani V., Hayden M. R., Timmus T., Sipione S., and Cattaneo E. (2001) Loss of huntingtin-mediated BDNF gene transcription in Huntington's disease. *Science* **293**, 493-498.
- Zuccato C., Tartari M., Crotti A., Goffredo D., Valenza M., Conti L., Cataudella T., Leavitt B. R., Hayden M. R., Timmus T., Rigamonti D., and Cattaneo E. (2003) Huntingtin interacts with REST/NRSF to modulate the transcription of NRSE-controlled neuronal genes. *Nat Genet* **35**, 76-83.
- Zuch C. L., David D., Ujhelyi L., Hudson J. L., Gerhardt G. A., Kaplan P. L., and Bickford P. C. (2004) Beneficial effects of intraventricularly administered BMP-7 following a striatal 6-hydroxydopamine lesion. *Brain Res* **1010**, 10-16.
- Zurn A. D., Winkel L., Menoud A., Djabali K., and Aebischer P. (1996) Combined effects of GDNF, BDNF, and CNTF on motoneuron differentiation in vitro. *J Neurosci Res* **44**, 133-141.
- Zwijnen A., Verschueren K., and Huylebroeck D. (2003) New intracellular components of bone morphogenetic protein/Smad signaling cascades. *FEBS Lett* **546**, 133-139.