

**IGOR A. ILINSKY, M.D., Ph.D.**

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## Personal Data

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## Education

1965	M.D.	The First Moscow Medical Institute, Moscow, Russia
1970	Ph.D.	Academy of Medical Sciences, Moscow, Russia, Dissertation: <i>"Identification of the ventrolateral nucleus of the thalamus during stereotactic operations on Parkinsonian patients."</i>
1965-67		Neurosurgery resident, Burdenko Institute of Neurosurgery
1967-70		Postdoctoral fellow, Burdenko Institute of Neurosurgery

## Academic Appointments

1970-74	Junior Research Scientist, equivalent of Asst. Professor of Neurosurgery, Burdenko Neurosurgery Institute, Moscow
1975-79	Instructor of Anatomy, St. Louis University Medical School
1980-83	Asst. Professor of Anatomy and Neurosurgery, St. Louis University Medical School
1984-85	Visiting Scientist, Section of Neuroanatomy, Yale University School of Medicine
1985-86	Visiting Associate Professor of Neuroanatomy, University of Iowa College of Medicine
1986- 2001	Research Scientist, equivalent of Research Professor in Department of Anatomy and Cell Biology
1986- 2001	Faculty, Interdepartmental Neuroscience Program, University of Iowa College of Medicine
Starting 2002	Retired from the University of Iowa and continued work on the atlas of human motor thalamus.

## Professional Affiliations

Society for Neuroscience  
 American & World Society for Stereotactic & Functional Neurosurgery  
 International Basal Ganglia Society  
 International Brain Research Organization

## Areas of Research Interest

Neuroanatomy - structure and function of thalamus and basal ganglia.

### Teaching Activities

1976-78	Medical Neuroanatomy, St. Louis University (laboratory)
1977-82	St. Louis University Hospital - lectures on selected topics in neuroanatomy for neurosurgery and neurology residents.
1984-85	Medical Neuroanatomy, University of Iowa, (lectures and laboratory)
1986-2001	Medical Neuroscience, University of Iowa, (lectures and laboratory)

### Other Professional Activities

Neuroscience Program, Ph.D. thesis committee member for:

J.P. Wensel, 1989  
 W.G. Tourtellotte, 1991  
 L. Freedman, 1993  
 Y. Tai, 1998  
 A. Mason, 1999

Reviewer for scientific journals:

"Science"  
 "Journal of Neuroscience Methods"  
 "Somatosensory and Motor Research"  
 "Neuroscience"  
 "Journal of Comparative Neurology"  
 "Cerebral Cortex"  
 "Brain Research Bulletin"  
 "Neuroimage"  
 "Trends in Neurosciences"  
 "Neuroscience "  
 Pergamon Press, Neuroscience Division  
 "Movement Disorders"

Consultant:

Program Project, "Neurobiology of Cerebellar – Brainstem Systems", R. Llinas, P.I., Department of Physiology and Biophysics, New York University School of Medicine, 1990-1992.

Organizer:

International Workshop on the "Thalamus and Basal Ganglia in Health and Movement Disorders," May 2001, Moscow, Russia.

Invited Speaker:

1977	Department of Neurosurgery, St. Louis University School of Medicine
1978	Department of Neurology, St. Louis University School of Medicine
1980	Department of Anatomy, University of California, Irvine
1982	Department of Neurology, University of Iowa College of Medicine
1983	Laboratoire de Physiologie des Centres Nerveux, Université Pierre et Marie Curie, Paris, France

- 1985 Laboratorio di Fisiologia di Centri Nervosi di CNS, Milano, Italy
- 1987 International Symposium "Cellular Thalamic Mechanisms", Verona, Italy
- 1989 Departments of Anatomy and Neuropathology, University of Verona, Verona, Italy
- 1989 International Symposium on the Motor Thalamus, Nikko, Japan
- 1990 Departamento de Morfologia Facultad de Medicina, Universidad Autonoma, Madrid, Spain
- 1991 Laboratory of Neurophysiology, Rockefeller University, New York
- 1992 International Symposium "Thalamic Networks on Relay and Modulation", Rome, Italy
- 1994 International Symposium "Nucleus Reticularis Thalami", Brain Research Institute, University of California, Los Angeles
- 1997 INSERM U106, Hôpital de Salpêtrière, Paris, France
- 2000 International Workshop "Basal Ganglia and Thalamus in Health and Movement Disorders". Moscow, Russia
- 2001 International Expert Course and Workshop "Management of Patients with Deep-Brain Stimulations," Salzau, Germany

#### National Committees:

- 1987 Ad Hoc Member of NIH Site Visit Team for Program Project Grant. Department of Neurosurgery, University of Washington, Seattle
- 1991 Ad Hoc Reviewer for National Science Foundation.
- 1992 Ad Hoc Reviewer for National Science Foundation.
- 1994 Ad Hoc Reviewer for International Science Foundation. (G. Soros Foundation)
- 1996-2001 NIH reviewers' reserve

#### Financial Resources

##### A. Federal

NIH, Cerebellothalamic systems: motor and cognitive circuits, 7/1/1997 - 6/30/2001, \$767,063, I.A. Ilinsky, Principal Investigator.

NIH, Synaptic organization of the primate thalamus, 11/9/87 - 6/1995, \$746,338. I.A. Ilinsky, Principal Investigator.

NSF, Connections of the reticular thalamic nucleus, 10/1991 - 9/1995, \$198,423. I.A. Ilinsky, Principal Investigator.

NIH, Thalamic GABAergic systems in dyskinetic disorders, 4/1/1993 - 3/31/1997, \$788,376, co-investigator.

NIH, Thalamic plasticity induced by lesions in basal ganglia, 9/1981-9/1991, \$940,730. I.A. Ilinsky, co-investigator.

NIH, Connections of the primate motor thalamus. 4/1988-3/1991, \$385,522. I.A. Ilinsky, co-investigator.

NIH, A Stereotaxic Atlas Based on intracerebral landmarks, 7/1980-6/1982, \$67,366, I.A. Ilinsky, Principal Investigator.

BRSR #373, Use of ventriculography for increasing the accuracy of stereotaxic operations, 7/1976-6/1977, \$12,720, I.A. Ilinsky, Principal Investigator.

B. Private

The American Parkinson Disease Association, Synaptic Organization of thalamic inputs from the basal ganglia and cerebellum, 7/1980-12/1981, \$10,000. I.A. Ilinsky, Principal Investigator.

The American Parkinson Disease Association, Autoradiographic study of GABA-receptor binding in the cat thalamus after deafferentation from basal ganglia, 7/1984-12/1985, \$20,000. I.A. Ilinsky, co-investigator.

Bibliography

*Papers and Book Chapters Published*

Ilinsky, I.A. and N. Vasin. Some issues pertinent to clinical picture and diagnosis of malformations of spinal cord vessels. (In Russian) *Voprosy Neurokhir.*, 3:14-20, 1967.

Vasin, N. and I.A. Ilinsky. The surgical treatment of developmental defects of the spinal cord vessels. (In Russian) *Khirurgia*, 12:12-16, 1969.

Vasin, N., A. Shakhnovich, I. Ilinsky and L. Milovanova. H-reflex and capsular effects during stereotaxic operations on the ventrolateral nucleus of the thalamus. (In Russian) *Voprosy Neurokhir.*, 3:6-10, 1970.

Vasin, N., V. Gurfinkel, I. Ilinsky, V. Safronov. Capsular effects in the electrostimulation of the ventrolateral nucleus in stereotaxic operations for hyperkineses. (In Russian) *Bull. Exp. Biol. Med.*, 9:3-6, 1970.

Ilinsky, I.A. Emotional-affective reaction in the electric stimulation of the ventrolateral nucleus of the thalamus. (In Russian) *Voprosy Neurokhir.*, 4:26-29, 1970.

Vasin, N., I. Ilinsky and V. Safronov. Evaluation of the optimal area for lesioning in the ventro-oral group of thalamic nuclei on the basis of electrostimulation effects in Parkinsonism. (In Russian) *Voprosy Neurokhir.*, 6:6-13, 1971.

Arkipova, N. and I. Ilinsky. Electroencephalographic changes in patients with Parkinsonism following anode electrolysis of the ventrolateral thalamic nucleus. (In Russian) *Voprosy Neurokhir.*, 4:46-51, 1972.

Kijashenko, N. and I. Ilinsky. On disorders of the higher cortical functions during lesioning of the ventrolateral nucleus of the thalamus in Parkinsonian patients. (In Russian) *Korasakov Zhurnal Neuropath. Psykhiat.*, 11:1646-1661, 1972.

Vasin, N., I. Ilinsky and V. Safronov. A clinical analysis with spectromechanomyographic control of the effectiveness of L-Dopa treatment of Parkinsonian patients. (In Russian and English) The Clinical Value of L-Dopa (Larodopa Roche) Moscow and Basel, pp. 91-102, 1973.

Mayorchik, V., I. Ilinsky and N. Vasin. The role of specific and unspecific thalamic nuclei in the genesis of some forms of slow rhythms in human electrocorticograms. (In English) A translation of *Neirofiziologiya*, 5:173-180, 1974.

Vasin, N., I. Ilinsky and A. Konovalov. Surgical treatment of arterio-venous aneurysms of the spinal cord. (In Russian) *Neurosurgical Pathology of Brain Vessels*, Moscow, pp. 357-365, 1974.

Ilinsky, I. and Z. Poljanker. Ventriculography with myodil emulsion in stereotaxic neurosurgery. (In Russian) *Voprosy Neurokhir.*, 2:56-57, 1974.

Vasin, N., I. Ilinsky and V. Safronov. On the results of L-Dopa therapy and in comparison to surgical methods of treatment of Parkinsonism. (In Russian) *Korsakov Zhurnal Neuropath. Psykhiat.* 5:701-706, 1974.

Ilinsky, I.A., K. Kultas-Ilinsky and K.R. Smith. A stereotaxic method based on ventricular radiography in the cat (with special reference to the stereotaxic topography of the substantia nigra). *Exp. Brain Res.*, 33:469-480, 1978.

Kultas-Ilinsky, K., I.A. Ilinsky, L.C. Massopust, P.A. Young and K.R. Smith. Nigrothalamic pathway in the cat demonstrated by autoradiography and electron microscopy. *Exp. Brain Res.*, 33:481-492, 1978.

Kultas-Ilinsky, K., I.A. Ilinsky, P.A. Young and K.R. Smith. Ultrastructure of degenerating cerebellothalamic terminals in the ventral medial nucleus of the cat. *Exp. Brain Res.*, 38:125-135, 1980.

Kultas-Ilinsky, K., S. Warton, D.L. Tolbert and I.A. Ilinsky. Quantitative and qualitative characteristics of dentate and fastigial afferents identified by electron microscopic autoradiography in the cat thalamus. *Brain Res.*, 201:220-226, 1980.

Tolbert, D.L., K. Kultas-Ilinsky and I.A. Ilinsky. EM-autoradiography of cerebellar nucleocortical terminals in the cat. *Anat. Embryol.*, 161:215-223, 1980.

Ilinsky, I.A., K. Kultas-Ilinsky, P.A. Young and K.R. Smith. Stereotaxic neurosurgery in experimental animals. Use of intracerebral landmarks and an atlas of the cat brain. *Appl. Neurophysiol.*, 43:269-28, 1980.

Archer, C.R., I.A. Ilinsky, P. Goldfader and K.R. Smith. Aphasia in thalamic stroke: stereotaxic localization by computed tomography. *J. Computer Ass. Tomography*, 3(5):427-432, 1981.

Ilinsky, I.A., K. Kultas-Ilinsky and K.R. Smith. Organization of basal ganglia inputs to the thalamus. A light and electron microscopic study in the cat. *Appl. Neurophysiol.*, 45:230-237, 1982.

Ilinsky, I.A. and K. Kultas-Ilinsky. Stereotaxic surgery in the Rhesus monkey (*Macaca mulatta*) utilizing intracerebral landmarks. *Appl. Neurophysiol.*, 45:563-572, 1982.

Kultas-Ilinsky, K., I. Ilinsky, S. Warton and K.R. Smith. Fine structure of nigral and pallidal afferents in the thalamus: An EM autoradiography study in the cat. *J. Comp. Neurol.* 216:390-405, 1983.

Warton, S., D.G. Jones, I.A. Ilinsky and K. Kultas-Ilinsky. Nigral and cerebellar synaptic terminals in the intermediate and deep layers of superior colliculus as revealed by lesioning. *Neuroscience*, 10:789-800, 1983.

Ilinsky, I.A. and K. Kultas-Ilinsky. An autoradiographic study on topographical relationships between pallidal and cerebellar projections to the cat thalamus. *Exp. Brain Res.* 54:95-106, 1984.

Ilinsky, I.A., M.L. Jouandet and P.S. Goldman-Rakic. Organization of the nigrothalamocortical system in the Rhesus monkey. *J. Comp. Neurol.* 236:315-330, 1985.

Graff-Radford, N.R., R.L. Schelper, I.A. Ilinsky, H. Damasio. Computed tomographic and postmortem study of a nonhemorrhagic thalamic infarction. *Arch. Neurol.* 42:761-764, 1985.

Kultas-Ilinsky, K. and I.A. Ilinsky. Neuronal and synaptic organization of the motor nuclei of mammalian thalamus. Invited review in a series "Current Topics in Research on Synapses". Edited by D.G. Jones, Alan Liss Inc., New York. 252:106-129, 1986.

Minciacchi, D., M. Bentivoglio, K. Kultas-Ilinsky, I.A. Ilinsky and G. Macchi. Multiple cortical targets of one thalamic nucleus: projections of the ventral medial nucleus in the cat studied with retrograde tracer. *J. Comp. Neurol.* 252:106-129, 1986.

Ilinsky, I.A., K. Kultas-Ilinsky, A. Rosina and M. Haddy. Quantitative evaluation of crossed versus uncrossed projections of basal ganglia to the thalamus in the cat. *Neuroscience* 21:207-227, 1987.

Ilinsky, I.A. and K. Kultas-Ilinsky. Sagittal cytoarchitectonic maps of the *Macaca mulatta* thalamus with a revised nomenclature of the motor-related nuclei validated by observation on their connectivity. *J. Comp. Neurol.* 262:331-364, 1987.

Kultas-Ilinsky, K., J.D. Fogarty, B. Hughes, and I.A. Ilinsky. Distribution and binding parameters of GABA and benzodiazepine receptors in the cat motor thalamus and adjacent nuclear groups. *Brain Res.* 459:1-16, 1988.

Kultas-Ilinsky, K. and I.A. Ilinsky. GABAergic systems of the feline motor thalamus: neurons, synapses and receptors. In: "Cellular thalamic mechanisms", Edited by R. Spreafico and M. Bentivoglio, Elsevier. pp. 349-363, 1988.

Kultas-Ilinsky, K., I.A. Ilinsky, B. Hughes, and J.D. Fogarty. GABA and benzodiazepine receptors in the cat motor thalamus after lesioning of nigro- and pallidothalamic pathways. *Brain Res.* 511:197-208, 1990.

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Ilinsky, I.A. and K. Kultas-Ilinsky. The magnocellular subdivision of the ventral anterior thalamic nucleus of *Macaca Mulatta*. I. Neuronal and synaptic organization. *J. Comp. Neurol.*, 294:455-478, 1990.

Kultas-Ilinsky, K. and I.A. Ilinsky. The magnocellular subdivision of the ventral anterior thalamic nucleus of *Macaca Mulatta*. II. Ultrastructural organization of the nigrothalamic pathway. *J. Comp. Neurol.*, 294:479-489, 1990.

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Kultas-Ilinsky, K., T. DeBoom and I.A. Ilinsky. Synaptic reorganization in the feline ventral anterior thalamic nucleus (VA) induced by lesions in the basal ganglia. *Exp. Neurol.*, 116:312-329, 1992.

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Kultas-Ilinsky, K., T. DeBoom and I. Ilinsky. Interspecies comparison of expression of GABA/benzodiazepam receptors and their subunits in the motor and limbic nuclei of the thalamus. In: D. Minicchi, M. Molinari and E. Jones (Eds.). *"Thalamic Networks for Relay and Modulation,"* Elsevier, pp. 291-299, 1993.

Ilinsky, I.A., A. Toga and K. Kultas-Ilinsky. Anatomical organization of internal thalamic circuits in the nuclei of the motor thalamus. In: D. Minicchi, M. Molinari and E. Jones, (Eds.) *"Thalamic Networks for Relay and Modulation,"* Elsevier, pp. 155-164, 1993.

Kultas-Ilinsky, I., H. Yi and I.A. Ilinsky. Nucleus reticularis thalami input to the anterior thalamic nuclei in the monkey: a light and electron microscopic study. *Neurosci. Lettr.*, 186:25-28, 1995.

Ilinsky, I. and Kultas-Ilinsky, K. The Basal Ganglia and Thalamus, (Chapter) in the *Neuroscience in Medicine* (textbook), M. Conn (Ed.) by J.B. Lippincott Co., Philadelphia, pp. 343-368, 1995.

Tai, Y., H. Yi, I.A. Ilinsky and K. Kultas-Ilinsky. Nucleus reticularis thalami connection with the mediodorsal thalamic nucleus: light and electron microscopic study in the monkey. *Brain Res. Bull.* 38:475-488, 1995.

Balercia, G., K. Kultas-Ilinsky, M. Bentivoglio and I.A. Ilinsky. Neuronal and synaptic organization of the centromedian nucleus of the monkey thalamus: a quantitative ultrastructural

study with tract tracing and immunohistochemical observations. *J. Neurocytol.* 25:267-288, 1996.

Mason, A., I.A. Ilinsky, K. Kultas-Ilinsky and S. Beck. Reevaluation of synaptic relationships of cerebellar terminals in the ventral lateral nucleus of the rhesus monkey thalamus based on serial section analysis and three-dimensional reconstruction. *Exp. Brain Res.*, 109:219-239, 1996.

Kultas-Ilinsky, K. and I.A. Ilinsky. Reticular nucleus connections and associated GABA receptors in primates. *Pharmacol. Rev. Comm.* 8:173-176, 1996.

Ilinsky, I.A., L. Reising and K. Kultas-Ilinsky. Pallidal afferent territory of the *Macaca Mulatta* thalamus: Neuronal and synaptic organization of the VAdc. *J. Comp. Neurol.*, 386:573-600, 1997.

Kultas-Ilinsky, K., H. Yi and I.A. Ilinsky. The mode of termination of pallidal afferents to the thalamus: A light and electron microscopic study with anterograde tracers and immunocytochemistry in *Macaca Mulatta*. *J. Comp. Neurol.*, 386:601-612, 1997.

Gao, D.M., A. Benazzouz, B. Piallat, K. Bressand, I.A. Ilinsky, K. Kultas-Ilinsky and A.L. Benabid. High frequency subthalamic stimulation suppresses experimental resting tremor in the monkey. *Neuroscience*, 88:201-212, 1998.

Ilinsky, I.A., A.V. Ambardekar and K. Kultas-Ilinsky. Organization of projections from the anterior pole of the nucleus reticularis thalami (NRT) to subdivisions of the motor thalamus: light and electron microscopic studies in the rhesus monkey. *J. Comp. Neurol.*, 409:369-384, 1999.

Ambardekar, A., I.A. Ilinsky, W. Foerstl, N. Bowery and K. Kultas-Ilinsky. Distribution and properties of GABA<sub>B</sub> antagonist [<sup>3</sup>H]CGP 62349 binding in the rhesus monkey thalamus and basal ganglia and the influence of lesions in the reticular thalamic nucleus. *Neuroscience* 93(4):1339-1347, 1999.

Bowery, N.G., K. Parry, G. Goodrich, I. Ilinsky, and K. Kultas-Ilinsky. Distribution of GABA<sub>B</sub> binding sites in the thalamus and basal ganglia of the Rhesus monkey (*Macaca mulatta*). *Neuropharmacology*, 38:1675-1683, 1999.

Mason A., I.A. Ilinsky, S. Maldonado and K. Kultas-Ilinsky. Thalamic terminal fields of individual axons from the ventral part of the dentate nucleus of the cerebellum in *Macaca mulatta*. *J. Comp Neurol.*, 421:412-428, 2000.

Ilinsky, I.A. and K. Kultas-Ilinsky. Neuroanatomical organization and connections of the motor thalamus in primates. In: K. Kultas-Ilinsky and I.A. Ilinsky (Eds). "Basal Ganglia and Thalamus in Health and Movement Disorders," Kluwer Academic/Plenum Publishers, New York. pp. 77-91, 2001.

Kultas-Ilinsky, K. and I.A. Ilinsky. Neurotransmitters and receptors in the primate motor thalamus and potential for plasticity. In: K. Kultas-Ilinsky and I.A. Ilinsky (Eds). "Basal Ganglia and Thalamus in Health and Movement Disorders," Kluwer Academic/Plenum Publishers, New York. pp. 215-224, 2001.



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Ambardekar, A., A. Surin, K. Parts, I. Ilinsky, and K. Kultas-Ilinsky. Distribution and binding parameters GABA<sub>A</sub> receptors in the thalamic nuclei of *Macaca mulatta* and changes caused by lesioning in the globus pallidus and reticular thalamic nucleus. *Neuroscience*, 118:1033-1043, 2003

Kultas-Ilinsky, K., Sivan-Loukianova E., and I.A. Ilinsky. Reevaluation of the primary motor cortex connections with the thalamus in primates. *J. Comp. Neurol.*, 457:133-158, 2003.

Kultas-Ilinsky, K., I. Ilinsky, and C. Verney. Glutamic Acid Decarboxylase Isoform 65 Immunoreactivity in the Motor Thalamus of Humans and Monkeys: Gamma Aminobutyric Acidergic Connections and Nuclear Delineations. *J. Comp. Neurol.* 519:2811-2837, 2011

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Mayorchik, V., N. Vasin and I. Ilinsky. Thalamo-cortical interrelationships revealed by the results of electrostimulation of the nuclei of the thalamus during stereotaxic operations on

subcortical structures. (In Russian) Proceedings of the First Congress of Neurosurgeons of the USSR, Moscow, 3:232-239, 1971.

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Ilinsky, I., K. Kultas-Ilinsky and K. Smith. Autoradiographic and ultrastructural studies of nigral projections to the ventromedial nucleus of the cat. *Anat. Rec.*, 187:611, 1977. American Association of Anatomists, Detroit, 1977.

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Kultas-Ilinsky, K., I. Ilinsky and K.R. Smith. Autoradiographic and ultrastructural demonstration of nigrothalamic projections in the cat with special reference to a new stereotaxic technique. *Neurosci. Letts., Suppl.* 1:165, 1978. European Neurosci. Assoc., Florence, Italy, 1978.

Kultas-Ilinsky, K., I. Ilinsky, P.A. Young and K.R. Smith. Ultrastructure of cerebellar afferents in the ventral medial thalamic nucleus in the cat. *Neurosci. Abst.*, 4:298, 1978. Soc. for Neurosci., St. Louis, 1978.

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Kultas-Ilinsky, K., D.L. Tolbert and I.A. Ilinsky. An autoradiographic identification of terminals of cerebellar nucleocortical fibers in the cat. *Neurosci. Abst.*, 5:102, 1979, Soc. for Neurosci., Atlanta 1979.

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Ilinsky, I.A., K. Kultas-Ilinsky, S. Warton and K.R. Smith. EM-autoradiography of nigrothalamic terminals in the cat. *Neurosci. Abst.*, 7:149, 1981. Society for Neurosci., Los Angeles, 1981.

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Kultas-Ilinsky, K. and I.A. Ilinsky. Synaptic organization of nigral and pallidal afferents in the motor thalamus. *Neurosci. Suppl.* 7:124, 1982. The First World Congress of IBRO, Lausanne, Switzerland, 1982.

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Kultas-Ilinsky, K., I.A. Ilinsky and K.R. Smith. Electron microscopic autoradiography of pallidothalamic terminals in the cat. *Neurosci. Abst.*, 8:170, 1982. Society for Neuroscience, Minneapolis, 1982.

Kultas-Ilinsky, K. and I. Ilinsky. Subdivisions of the ventral thalamus based on their connectivity. *Neurosci. Abst.*, 9:, 1983. Society for Neuroscience, Boston, 1983.

Warton, S., D.G. Jones, K. Kultas-Ilinsky and I.A. Ilinsky. Ultrastructure of the nigral afferent terminals in the superior colliculus and the thalamus of the cat. An EM-autoradiography study. Proceedings International Congress of the International Union of Physiological Sciences, Sydney, Australia, 1983.

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