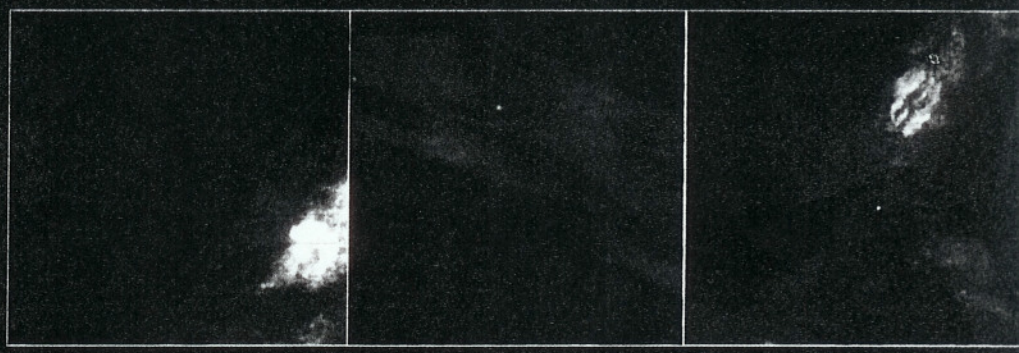
Neuroscience 2004

WEDNESDAY OCTOBER 27

Final Program

Scientific Session Listings

Sessions 810-1033



SOCIETY FOR NEUROSCIENCE

34TH ANNUAL MEETING

SAN DIEGO, CA

SFN

SOCIETY FOR NEUROSCIENCE

9:00 UU32 **903.6** Prior deep brain stimulation of the subthalamic protects nigral neurons and reverses behavioral deficits from 6-hydroxydopamine toxicity. Y. ZHAO; A.P. SIGNORE; G. CAO*; M. WANG. *First People's Hosp. of Shanghai, Univ. of Pittsburgh Med. Ctr.*

10:00 VV1 **903.7** Perinodal potassium accumulation blocks output of model subthalamic neurons. G.C. MIYAZAWA*; P.N. STEINMETZ. *Univ. of Minn.*

11:00 VV2 **903.8** Failure of modulation of dopaminergic neuronal arbors in nicotinic receptor subunit knockout mice. J. NUNAN; C.L. PARISH; Y. TEPER; D.I. RINKELSTEIN*; M.K. HORNE; J. DRAGO. *Howard Florey Inst.*

8:00 VV3 **903.9** Behavioral study that deep brain stimulation of subthalamic nucleus alleviates neuronal activity in subthalamic nucleus in 6-hydroxydopamine lesioned rats. Y.S. HWANG*; S.I. PARK; K.J. KIM; B. LEE; J.H. OH; Y.E. LEE; J.W. CHANG; S.J. KIM. *Yonsei Univ. Col.of Med, Seoul Nat'l Univ.*

9:00 VV4 **903.10** Long-term high frequency stimulation of the subthalamic nucleus modulates dopaminergic function in parkinsonian rats. D. HARNACK*; W. MEISSNER; A. HARI; R. SOHR; C. WINTER; R. MORGENSTERN; A. KUPSCH. *Humboldt Univ., Charite Hosp., CNRS, Univ. Victor Segalen.*

10:00 VV5 **903.11** Electrical stimulation of the pedunculopontine area can improve Parkinsonian akinesia: Preliminary evidence from an MPTP macaque model. N. JENKINSON*; D. NANDI; R.C.M. MIALL; J.F. STEIN; T.Z. AZIZ. *Oxford Univ.*

11:00 VV6 **903.12** Acupuncture on LR3 and GB34 reduced microglial activation of substantia nigra in 6-hydroxydopamine (6-OHDA) lessioned rat model of Parkinson's disease. H. PARK; I. CHOE; W. JOO; Y. KIM; S. LIM*. *Col. of Oriental Med. in Kyunghee Univ., Col. of Med. and Neurosci. Res. Inst. of Med. Res. Ctr. in Seoul Natl. Univ., Inst. of Oriental Med. in Kyunghee Univ.*

8:00 VV7 **903.13** Uncoupling protein 2 is critical for nigral dopamine cell survival in a mouse model of Parkinson's disease. Z.B. ANDREWS; B. HORVATH; R.T. MATTHEWS; T.L. HORVATH*. *Yale Med. Sch.*

9:00 VV8 **903.14** Wld mutant mice are resistant to 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP) toxicity. E.B. GEORGE*. *Wayne State Univ., John D. Dingell VAMC.*

10:00 VV9 **903.15** Bio-heat model of deep brain stimulation-induced temperature changes. Q. KONG; M. BIKSON*; M. VAZQUEZ. *City Col. of New York.*

11:00 VV10 **903.16** Neuroprotection of dopaminergic neurons by electroconvulsive shock in an animal model of Parkinson's disease. G.A. DE ERAUSQUIN*; A. ANASTASIA; R. REYNOSO; H. LÓPEZ MORRA; D.H. MASCÓ. *Washington Univ. Sch. Med, Universidad Nacional de Cordoba, Harvard Med. Sch.*

POSTER

904. Neurodegeneration Mechanisms IV

Theme G

Wed. 8:00 AM — San Diego Convention Center, Hall A-H

8:00 VV11 **904.1** Taurine effects on progressive neurodegeneration in hippocampus CA1 cells, caused by repeated low ozone exposure. S.L. RIVAS-ARANCIBIA*; M. RAMÍREZ-ESCOTO; C. RUGERIO-VARGAS. *Facultad De Medicina, UNAM.*

9:00 VV12 **904.2** Pinealectomy: Differential hippocampal CA1 and CA3 pyramidal cell loss within 4 months and reversal by melatonin supplementation. M. DE BUTTE; B.A. PAPPAS*. *Carleton Univ.*

10:00 VV13 **904.3** Different mechanisms of hypoxia tolerance in arctic ground squirrels and rats. Y. MA*; K.D. COZAD; P.M. RIVERA; H. ZHAOI; K.D. DREW. *Univ. Alaska.*

11:00 VV14 **904.4** Protection from oxidative stress-induced apoptosis by arginase is associated with activation of the endoplasmic reticulum stress response. P.S. LANGE*; B. LANGLEY; R.R. RATAN. *Harvard Med. Sch., Burke/Cornell Med. Res. Inst.*

8:00 VV15 **904.5** 4-hydroxynonenal disrupts zinc transport in primary rat cortical cells. J.L. SMITH; S. XIONG; W.R. MARKESBERY; M.A. LOVELL*. *Univ. of Kentucky.*

9:00 VV16 **904.6** Studies of the roles of E2F1 in cell cycle related neuronal death. L. WANG; K. HERRUP*. *case western reserve Univ.*

10:00 VV17 **904.7** Stress induces upregulation of the vascular endothelial growth factor receptor-2 (VEGFR-2/KDR) via c-Jun N-terminal kinase in SK-N-SH neuroblastoma cells. E. GOMES*; P. ROCKWELL. *Hunter Col.*

11:00 VV18 **904.8** • Novel phospholipid-based drug formulation reverses the age-related increase in interleukin-1β in the rat hippocampus. D.S.D. MARTIN*; M. WALSH; Y. NOLAN; A. MANDEL; A. BOLTON; M.A. LYNCH. *Vasogen Ireland Ltd., Trinity Col. Inst. of Neurosci., Vasogen Inc., UCC.*

8:00 VV19 **904.9** Minocycline inhibits apoptotic cell death via attenuation of TNF-α expression following iNOS/NO induction by lipopolysaccharide in neuron/glia co-cultures. S.M. LEE; T.Y. YUNE*; S.J. KIM; Y.J. KIM; Y.J. OH; G.J. MARKELONIS; T.H. OH. *Korea Inst. Sci. & Technol. (KIST), Seoul Univ., Yonsei Univ., Univ. of Maryland Sch. of Med.*

9:00 VV20 **904.10** Differential effects of human apolipoprotein E isoforms on neuronal proliferation in adult mice cortical culture (AMC). A.G. BARSUKOVA*; J. PARK; R.G. STRUBLE; J. RABER; B.P. NATHAN. *Eastern Illinois Univ., Southern Illinois Univ. Sch. of Med. , Oregon Hlth. & Sci. Univ.*

10:00 VV21 **904.11** A small Tat-HIF-peptide corresponding to the oxygen-degradation-domain is neuroprotective and upregulates downstream genes. A. SIDDIQ*; J. CHAVEZ; I. AYOUB; L. AMINOVA; R.R. RATAN. *Harvard Inst. Med, Burke Rehab. Hosp.*

11:00 VV22 **904.12** Microglia express the inhibitory TREM-like Transcript-2 (TLT-2) receptor. A. RYNKO; B. MELCHIOR; M.J. CARSON*. *The Scripps Res. Inst.*

8:00 WW1 **904.13** The role of mitochondria dysfunction in the neuronal response to proteasome inhibition. L. PAPA*; P. ROCKWELL. *Hunter Col.*

9:00 WW2 **904.14** Lipopolysaccharide-induced neuroinflammation following microinjection into the striatum of rats: An immunohistochemical and magnetic resonance imaging study. W. SCHMIDT*; F. ANGENSTEIN; H.G. NIESSEN; E. WILHELMI; F. STRIGGOW. *KeyNeurotek AG, Leibniz Inst. for Neurobiology.*

10:00 WW3 **904.15** Neuropathological features of mouse brains lacking cathepsins B and L. M. KOIKE*; M. SHIBATA; S. WAGURI; E. KOMINAMI; C. PETERS; K. VON FIGURA; P. SAFTIG; Y. UCHIYAMA. *Osaka Univ. Sch. of Med. , Juntendo Univ. Sch. of Med. , Freibrug Univ., Goetingen Univ., Univ. Kiel.*

11:00 WW4 **904.16** A light and electron microscopic study of bilirubin immunoreactivity in the rat hippocampus after kainate-induced neuronal degeneration. W. ONG*; E. HUANG; L.J. GAREY. *Natl Univ. Singapore, UAE Univ.*

8:00 WW5 **904.17** Constitutive expression, localization and polymorphism of mitochondrial Glutaredoxin-2. S. SAMPATH*; K. SMITHA; V. RAVINDRANATH. *Nat'l Brain Res. Ctr.*

9:00 WW6 **904.18** Knock-down of c-Jun by RNA interference protects from retinal ganglion cell death *in vivo*. P. LINGOR; P.D. KOEBERLE; S. KÜGLER; M. BÄHR SPON:German Neurosci. Soc. *Univ. of Göttingen, Toronto Wester Res. Inst.*

10:00 WW7 **904.19** Effect of androgens on peroxisomal ABC-transporters and modified expression of the androgen metabolizing enzyme 5alpha-reductase in the neurodegenerative disease x-linked adrenoleukodystrophy. A. PETRONI*; M. BLASEVICH; G. UZIEL. *Univ. of Milan, Istituto Neurologico 'C.Besta'.*

• First author indicated a real or perceived conflict of interest, see page 117 for details.

Program Number: 903.9 **Day / Time:** Wednesday, Oct. 27, 8:00 AM - 9:00 AM

Behavioral study that deep brain stimulation of subthalamic nucleus alleviates neuronal activity in subthalamic nucleus in 6 - hydroxydopamine lesioned rats

Y.S.Hwang [1*]; S.I.Park[3]; K.J.Kim [3]; B.Lee [2]; J.H.Oh [1]; Y.E.Lee [1]; J.W.Chang [1,2]; S.J.Kim [3]

1. Dept of Neurosurgery, 2. Dept. of Med. Sci., BK21 Project for Med. Sci., Yonsei Univ Col.of Med, Seoul, South Korea, 3. Sch. of Electrical & Computer Eng, Seoul Nat'l Univ, Seoul, South Korea

Object: The purpose of this study is to investigate the spontaneous behavioral changes after deep brain stimulation of subthalamic nucleus (STN-DBS) in the freely moveable 6-hydroxydopamine-lesioned rats.

Background: Although its functional mechanism remains unknown, DBS of the STN is regarded as a most effective neurosurgical therapy for patients with Pakinson's disease. Previous data suggests that electrical stimulation of the STN may influence the nigral and striatal dopamine system.

Material and Method: We make stimulation system for animal PD model based on commercial PIC chips. (Weight 22g) The stimulation electrodes are designed to have minimal volume to minimize the physical lesion effect. The total volume of the electrode that is inserted in STN is about 2,620 um3 (length 100um, tapered rod structure). Stimulation parameters are amplitude of 5V, pulse width of 90 usec, and stimulation rate of 130 PPS, respectively. Assumptions about the mechanisms mediating the effects of lesioning of the nigrostriatal dopaminergic pathway by 6-OHDA and the effects of STN-DBS were examined behaviorally by means of apomorphine-induced rotational behavior and forepaw-adjusting steps.

Conclusions: Our results demonstrated that STN stimulation induced behavior improvement in rat parkinsonian models. This result, which confirms the previously held assumptions, may account for the therapeutic effect of STN stimulation in Parkinson's disease. These data indicate that DBS exerts an inhibitory influence on STN neuronal firing in rat parkinsonian models.

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