COE 国際シンポジウム
（第 29 回生理研国際シンポジウム）

本シンポジウムは抑制性神経伝達物質 GABA の神経系における役割を総括することを目的として，小幡邦彦〔神経化学研究部門教授〕，川口泰雄（大脳神経回路論研究部門教授，柳川右千夫（神経化学研究部門助教授）を組織委員として企画され，平成 14 年 2 月 26 日－28 日の 3 日間，岡崎コンファレンスセンターで下記のプログラムにより開催された。米国から 7 名，ヨーロッパから 7 名，国内から 13 名の招聘演者による講演と応募された 27 題のポスター発表とが行われた。参加者は 149 名であった。組織発生の初期過程，神経機能の発達，ネットワークのオシレーション的活動，トランスポーターによる機能分化，レセプター・サブタイプの機能等における最新の知見について報告，討論が行われた。脳研究領域のなかで焦点が絞られていたこともあって，内容の大半が各参加者の興味に沿ったものとなり，海外からの参加者からもきわめて優れたシンポジウムであったとの評価を得た。また国際シンポジウムの主旨である研究者交流が国内国外間だけでなく，米国・ヨーロッパ間でも予想外に活発に行われ，参加者間で多くの共同研究が開始されるきっかけとなった。

COE international symposium: The 29th NIPS International Symposium
“Inhibitory Neural Transmission in the Brain Structure and Function”
February 26-28, 2002
Okazaki Conference Center (OCC), Okazaki National Research Institutes, Okazaki, JAPAN

Tuesday, February 26, 2002

Welcome address: Kazuo Sasaki (Director-General, NIPS)

1. Kunihiko Obata (NIPS)
   Changes in GABA levels and neural functions induced by GAD gene targeting
2. Jeffery L. Barker (NIH)
   Transmitter signaling during early neurogenesis in the embryonic rat cortex
3. Arnold R. Kriegstein (Columbia Univ.)
   GABA and glycine receptors in embryonic cortical development
4. Nobuaki Tamamaki (Kyoto Univ.)

Interstitial white matter neurons project cortico-cortically and participate in the neocortical circuit

5. Fujio Murakami (Osaka Univ.)
   Migration of GABAergic neurons in fetal mouse telencephalon-in vivo and in vitro analysis of GAD67-GFP knock-in mice-
6. Yehezkel Ben-Ari (INSERM)
   Developing networks play a similar melody
7. Takao K. Hensch (RIKEN)
   Inhibitory circuit control of critical period plasticity in developing visual cortex
8. Hiroshi Nishimaru (Tsukuba Univ.)
   Developmental changes of the roles of inhibitory neurotransmitters in the rhythm generating network in the rat spinal cord
9. Junichi Nabekura (Kyushu Univ.)
   Pre- and postsynaptic switching of inhibitory synapses on developing lateral superior olive neurons
10. Atsuo Fukuda (Hamamatsu Univ. Sch. Med.)
    Ca^{2+} oscillations induced in axotomized neurons are attributable to GABAergic excitation caused by K^{+}-Cl^{-} cotransporter (KCC2) downregulation
11. Masao Ito (RIKEN)
    Functional roles of inhibitory neurons in the cerebellum - an overview

Wednesday, February 27, 2002

12. Peter M. Jonas (Univ. Freiburg)
    Inhibitory synaptic transmission in hippocampal interneuron networks
13. Gary L. Westbrook (Oregon Health Sci. Univ.)
    GABA dynamics in (and around) the synaptic cleft
14. Shozo Jinno (Kyushu Univ.)
    Cellular composition of chemically defined GABAergic nonprincipal neurons in the mouse hippocampus
15. Noga Vardi (Univ . Philadelphia)
    Two modes of antagonistic actions of glutamate and GABA at the first visual synapse
16. Yasuo Kawaguchi (NIPS)
    Quantitative morphological comparison of cortical GABAergic cell subtypes
17. Zoltan Nusser (Hungarian Acad. Sci.)
    Properties of $GABA_A$ receptors underlying tonic and phasic inhibitions
18. Hannah Monyer (Univ. Hosp. Neurol. Heidelberg)
    Molecular determinants in GABAergic interneurones for network synchrony and oscillatory activity
19. Roger Traub (The State Univ. of New York)
    Gap junctions between the axons of principal neurons, and the generation of fast oscillations in neuronal populations
20. Goabor or Szabo (Hungarian Acad. Sci.)
    The family of GABA-synthesizing emzymes, glutamic acid decarboxylases and their expression during neuronal differentiation
21. Yuchio Yanagawa (NIPS)
    Regulation of GABAergic neuron-specific gene transcription
22. Jang-Yen Wu (Univ. Kansas)
    Mechanism of neurotransmitter synthesis and packaging into synaptic vesicles

Thursday, February 28, 2002

23. Shiro Konishi (Mitsubishi Kagaku Inst.)
    Heterosynaptic regulation of cerebellar synaptic transmission
24. Yukio Komatsu (Nagoya Univ.)
    Activity-dependent maintenance and noradrenergic regulation of long-term potentiation at visual cortical inhibitory synapse
25. Bernhard Bettler (Univ. Basel)
    Molecular insights into $GABA_B$ receptor dimerization and physiology
26. Richard W. Olsen (UCLA Sch. Med.)
    Functions of $GABA_A$receptor subunits deduced from studies on gene-targeted mice
27. Uwe Rudolph (Univ. Zuich)
    $GABA_A$-receptor subtypes: Dissecting their pharmacological functions
    Closing remarks Kunihiko Obata (NIPS)

Poster Sessions 26-27 February, 2002

P-1. Hisaaki Namba (Niigata Univ,)
    Positive and negative regulating factors for excitatory synaptic development on the cortical inhibitory neurons
P-2. Amane Koizumi (Keio Univ.)
    GABAergic suppression of propagation of action potentials into the dendrites of retinal amacrine cells
P-3. Hidenori Suzuki (Nippon Medical School)
    Characterization of proteins and mRNAs in the rat amygdala with increased expression following fear conditioning
P-4. Yoshikazu Isomura (Tokyo Metropol. Inst. Neurosci.)
    Synaptically induced theta-like oscillation in the hippocampus in vitro
P-5. Takayuki Murakoshi (Tokyo Medical and Dental Univ.)
    Differential serotonergic modulation of inhibitory transmission in the rat visual cortex layer V
P-6. Makoto Bannai (Ajinomoto Co., Inc.)
    GABAergic regulation of "Running Neurons" localized in the ventromedial nucleus of hypothalamus
P-7. Miwako Masugi (NIPS)
    Two-dimensional distribution of glutamate and GABA receptors in the cerebellum visualized by SDS-FR
P-8. Shun-ichi Kuwana (Teikyo Univ.)
    Role of GABA in the development of respiratory neuronal network
P-9. Koichi Kaneko (NIPS)
    Enhanced synaptic plasticity of the thalamoamygdala pathway of adult GAD65 knockout mice
P-10. Chigusa Shimizu-Okabe (Hamamatsu Univ. Sch. Med.)
    The differential expression patterns of NKCC1 and KCC2 mRNAs in the rat neocortex
P-11. Akihito Okabe (Hamamatsu Univ. Sch. Med.)
    Changes in expression of the mRNAs for cation-Cl^- cotransporters and a voltage-dependent Cl^- channel in the rat brain after amygdaloid kindling
P-12. Masahiko Ikeda (Hamamatsu Univ. Sch. Med.)
    Differential developmental profile of GABAergic action and Cl^- homeostasis in the rat visual cortex and the dorsal lateral geniculate nucleus
P-13. Michikazu Samejima (Hamamatsu Univ. Sch. Med.)

Mesurement of intracellular Cl^- and monitoring of cellular volume changes using fluorescent dyes

P-14. Junko Yamada (Shizuoka Univ.)

Mechanisms of $GABA_A$ receptor-mediated excitation in the immature neocortical neurons studied by using gramicidin-perforated patch-clamp recordings and single cell RT-PCR

P-15. Hitoshi Aoshima (Yamaguchi Univ.)

Effects of natural compounds on the responses of ionotropic GABA receptors expressed in Xenopus oocyte

P-16. Takako Ohno-Shosaku (Kanazawa Univ.)

Cooperative endocannabinoid production by depolarization and metabotropic glutamate receptor activation

P-17. Shinya Kawaguchi (Kyoto Univ.)

Signaling cascades regulating GABAergic synaptic plasticity in a cerebellar purkinje neuron

P-18. Ryuzo Shingai (Iwate Univ.)

Phenotypes of locomotion in wild type and GABAergic mutants of Caenorhabditis elegans

P-19. Shin-Ichiro Satake (Mitsubishi Kagaku Inst.)

Effects of a glutamate uptake blocker on climbing fiber-induced inhibition at cerebellar GABAergic synapses

P-20. Kiyomi Nakayama (Tsukuba Univ.)

Commissural neurons coordinating left and right rhythmic motor activity in the fetal rat spinal cord

P-21. Toshiaki Endo (NIPS)

Identification of GABAergic neurons and nicotinic receptor-mediated facilitation of GABAergic transmission in the superficial superior colliculus studied by using GAD67-GFP knock-in mice

P-22. Fumihito Saitow (Mitsubishi Kagaku Inst.) β-Adrenergic enhancement of GABA release at cerebellar basket cell -purkinje cell synapses

P-23. Tomoaki Shirao (Gunma Univ.)

Tonic activity of adenosine A1 receptors regulates the signal flow at the CA2 region in rat hippocampus: Optical recording analysis

P-24. Keiko Nakanishi (Aichi Human Service Center)

Role of Cl^- transporters in spontaneous synaptic activities in cultured neocortical neurons

P-25. Takayuki Yoshida (Kanazawa Univ.)

The cannabinoid CB1 receptor mediates retrograde signals for depolarization-induced suppression of inhibition in cerebellar Purkinje cells

P-26. Tsuyoshi Ueno (Kyushu Univ.)

Diversity of IPSP depression and K^+-Cl^- cotransport in rat motor neurons

P-27. Yoshiyuki Kubota (NIPS)

Characteristics of postsynaptic target structures for axon terminals of cortical interneuron subtypes