

MD. TAHSINUL HAQUE, Ph.D.

haque@dent.osaka-u.ac.jp

tahsinul_hoque@yahoo.com

2-15-41-103
Onohara Nishi, Mino City
Osaka 562-0032
JAPAN
+8180-3764-4830 (cell)

Dept. of Oral Anatomy & Neurobiology
Graduate School of Dentistry
Osaka University, JAPAN
1-8 Yamadaoka, Suita, Osaka 565-0871

Nationality: Bangladeshi

EDUCATION

Osaka University Osaka, JAPAN
Ph.D., Dental Science 2011
Dissertation: *Morphological characteristics of descending projections from orofacial areas of the secondary somatosensory cortex to the lower brain stem in rats.*

Pioneer Dental College Dhaka, BANGLADESH
Bachelor of Dental Surgery (B.D.S.) 2003

AWARD

Monbukagakusho Scholarship Oct 2006 – Mar 2011

Ministry of Education, Culture, Sports, Science, and Technology, JAPAN

TEACHING EXPERIENCE

Osaka University Osaka, JAPAN
Mentor, for Graduate students March, 2011 - present

- Supervised research projects on the pain-receptive trigeminal nucleus and other brain stem areas in rats
- Supervised research projects on the trigeminal premotoneurons in the nucleus of the solitary tract in rats
- Oversaw group projects
- Led discussion, laboratory, and review sessions to elucidate basic neurobiological principles

Teaching Assistant, Oral Biology 2010

- Assistant to the Chair of the Oral Anatomy and Neurobiology Department.

Teaching Assistant, Oral Anatomy and Histology 2009
– Led discussion, laboratory, and review sessions

Teaching Assistant, Oral Anatomy and Physiology 2008
– Led discussion on research articles

Pioneer Dental College

Dhaka, BANGLADESH

Lecturer, Oral Anatomy & Oral Physiology

2005-2006

- Lecturer for the Dental Anatomy course with 60 students
- Taught lecture in the Oral Biology course, Structure and Development of Orofacial tissues
- Led discussion sessions integrating concepts in basic science and clinical dentistry
- Directed out-patient department
- Evaluated highly by students for demonstrating the course interesting and for stimulating independent thinking

RESEARCH EXPERIENCE

Osaka University

Osaka, JAPAN

Postdoctoral Fellow; Advisor: Prof. Atsushi Yoshida

2011- present

- Projections from the insular cortex to pain-receptive trigeminal caudal subnucleus (medullary dorsal horn) and other lower Brainstem areas in rats.
 - Used tract tracing techniques to study how the pain processing related insular cortex actually regulates orofacial pain processing in the trigeminal sensory nuclear complex.
- Somatotopic direct projections from orofacial areas of primary somatosensory cortex to pons and medulla, especially to trigeminal sensory nuclear complex, in rats.
 - Used electrophysiological recordings and tract tracing techniques to study the features of descending projections from the identified orofacial areas of the primary somatosensory cortex to the brainstem second-order somatosensory neuron pools and, how this cortical area involves in regulation of trigeminal sensory processing.

Osaka University

Osaka, JAPAN

Graduate Researcher; Advisor: Prof. Atsushi Yoshida

2007- 2011

- Morphological characteristics of descending projections from orofacial areas of the secondary somatosensory cortex to the lower brain stem in rats.
 - Used tract tracing techniques and electrophysiological recordings and stimulations to study the features of descending projections from orofacial areas of the secondary somatosensory cortex to the brainstem area including trigeminal sensory nuclear complex and, how this cortical area involves in regulation of trigeminal sensory processing.

- Thalamic afferent and efferent connectivity to cerebral cortical areas with direct projections to identified subgroups of trigeminal premotoneurons in the rat.
 - Used tract tracing techniques to study the roles of supramedullary brain mechanisms involved in the control of jaw movements and how the descending multiple pathways from the cerebral cortex to jaw-closing and jaw-opening premotoneurons have unique functional roles in jaw movement motor control.
- Corticofugal direct projections to primary afferent neurons in the trigeminal mesencephalic nucleus of rats.
 - Used tract tracing techniques to study about projections from the cerebral cortex to the trigeminal mesencephalic nucleus and, how deep sensory inputs conveyed by the mesencephalic neurons from masticatory muscle spindles and periodontal ligaments are regulated with specific biological significance in terms of the descending control by the cerebral cortex.
- Distribution of premotoneurons for jaw-closing and jaw-opening motor nucleus receiving contacts from axon terminals of primary somatosensory cortical neurons in rats.
 - Used tract tracing techniques to clarify features of direct projections from the primary somatosensory cortex to premotoneurons for the jaw-closing and jaw-opening components of the trigeminal motor nucleus and, how the cortex contributes to the control of jaw movements via the premotoneurons.
- Corticofugal projections to trigeminal motoneurons innervating antagonistic jaw muscles in rats as demonstrated by anterograde and retrograde tract tracing.
 - Used tract tracing techniques to study about the organization of corticofugal projections controlling antagonistic jaw muscles and, how corticofugal projections to trigeminal motor nucleus via premotoneuron structures influence distinct patterns of jaw movements.

PROFESSIONAL ASSOCIATIONS

Society for Neuroscience, JAPAN

Japanese Association for Oral Biology

Sensory-Motor Integration in Trigeminal System (三叉神経領域の感覚-運動統合機構研究会)

CONFERENCE PRESENTATIONS

- **Haque T**, Sato F, Oka A, Takeda R, Akhter F, Higashiyama M, Kato T, Yoshida A (2013). Differences in projections from the primary and secondary somatosensory cortex to the trigeminal sensory nuclear complex in the rat. Neuro 2013 Abstracts. 03-9-4-3. Oral presentation delivered at the Neuro 2013 meeting, Kyoto, Japan, June, 2013.
- Oka A, Takeda R, Sato F, Akhter F, **Haque T**, Kato T, Ohara H, Bae YC, Takada K, Moritani M, Yoshida A (2012). Projections to the trigeminal jaw-opening and jaw-closing premotoneurons in the nucleus of the solitary tract from the pharyngeal mucosa and the insular cortex in rats. Society for Neuroscience Abstracts. 789.06/SS9. Poster presentation at the Society for Neuroscience meeting. New Orleans, LA, October, 2012.

- Sato F, Akhter F, **Haque T**, Kato T, Takeda R, Higashiyama K, Fujio T, Bae YC, Yoshida A (2012). Direct projections from the insular cortex to orofacial pain-related lower brainstem areas, especially to the trigeminal caudal subnucleus, in rats. Society for Neuroscience Abstracts. 177.02/EE10. Poster presentation at the Society for Neuroscience meeting. New Orleans, LA, October, 2012.
- **Haque T**, Akhter F, Sato F, Kato T, Oka A, Sessle BJ, Yoshida A (2012). Differences in projections from the primary and secondary somatosensory cortex to the trigeminal sensory nuclear complex in the rat. Sensory-Motor Integration in Trigeminal System Abstracts. 6:21. Oral presentation delivered at the scientific meeting of Sensory-Motor Integration in Trigeminal System, Tokyo, Japan, July, 2012.
- **Haque T**, Kato T, Yoshida A (2011). Morphological characteristics of descending projections from orofacial areas of the secondary somatosensory cortex to the lower brainstem in the rat. Japanese Association for Oral Biology Abstracts. 53:54. Oral presentation delivered at the Japanese Association for Oral Biology meeting, Gifu, Japan, October, 2011.
- **Haque T**, Kato T, Yoshida A (2010). Morphological characteristics of descending projections from orofacial areas of the secondary somatosensory cortex to the lower brainstem in the rat. Sensory-Motor Integration in Trigeminal System Abstracts. 4:9. Oral presentation delivered at the scientific meeting of Sensory-Motor Integration in Trigeminal System, Ikeda, Japan, November, 2010.
- Sato F, **Haque T**, Kato T, Oka A, Takeda R, Kogo M, Masuda Y, Yoshida A (2010) Thalamic afferent and efferent connectivity to cerebral cortical areas with direct projections to identified subgroups of trigeminal premotoneurons in rats. Society for Neuroscience Abstracts. 683.9/VV19. Poster presentation at the Society for Neuroscience meeting. San Diego, CA, 16 November, 2010.
- **Haque T**, Yamamoto S, Takeda R, Tomita A, Sato F, Oka A, Uchino K, Kato T, Yoshida A (2010). Thalamic afferent and efferent connectivity to cerebral cortical areas with direct projections to identified subgroups of trigeminal premotoneurons in rats. Japanese Association for Oral Biology Abstracts. 52:05. Oral presentation delivered at the Japanese Association for Oral Biology meeting, Tokyo, Japan, September, 2010
- **Haque T**, Yamamoto S, Kato T, Masuda Y, Sato F, Oka A, Taki I, Yoshida A (2009). Thalamic afferent and efferent connectivity to cerebral cortical areas with direct projections to identified subgroups of trigeminal premotoneurons in rats. Sensory-Motor Integration in Trigeminal System Abstracts. 3:14. Oral presentation delivered at the scientific meeting of Sensory-Motor Integration in Trigeminal System, Karuizawa, Japan, October, 2009.

PEER-REVIEWED PUBLICATIONS

- Oka A, Yamamoto M, Takeda R, Ohara H, Sato F, Akhter F, **Haque T**, Kato T, Sessle BJ, Takada K, Yoshida A (2013) Jaw-opening and -closing premotoneurons in the nucleus of the solitary tract making contacts with laryngeal and pharyngeal afferent terminals in rats. Brain Res 1540:48-63.
- Sato F, Akhter F, **Haque T**, Kato T, Takeda R, Nagase Y, Sessle BJ, Yoshida A (2013) Projections from the insular cortex to pain-receptive trigeminal caudal subnucleus (medullary dorsal horn) and other lower Brainstem areas in rats. Neuroscience 233:9-27.
- **Haque T**, Akhter F, Kato T, Sato F, Takeda R, Higashiyama K, Moritani M, Bae YC, Sessle BJ, Yoshida A (2012) Somatotopic direct projections from orofacial areas of secondary somatosensory cortex to trigeminal sensory nuclear complex in rats. Neuroscience 219:214-233.
- Tomita A, Kato T, Sato F, **Haque T**, Oka A, Yamamoto M, Ono T, Bae YC, Maeda Y, Sessle BJ, Yoshida A (2012) Somatotopic direct projections from orofacial areas of primary somatosensory cortex to pons and medulla, especially to trigeminal sensory nuclear complex, in rats. Neuroscience 200:166-185.

- Iida C, Oka A, Moritani M, Kato T, **Haque T**, Sato F, Nakamura M, Uchino K, Seki S, Bae YC, Takada K, Yoshida A (2010) Corticofugal direct projections to primary afferent neurons in the trigeminal mesencephalic nucleus of rats. *Neuroscience* 169:1739-1757.
- **Haque T**, Yamamoto S, Masuda Y, Kato T, Sato F, Uchino K, Oka A, Nakamura M, Takeda R, Ono T, Kogo M, Yoshida A (2010) Thalamic afferent and efferent connectivity to cerebral cortical areas with direct projections to identified subgroups of trigeminal premotoneurons in the rat. *Brain Res* 1346:69-82.
- Chang Z, **Haque T**, Iida C, Seki S, Sato F, Kato T, Uchino K, Ono T, Nakamura M, Bae YC, Yoshida A (2009) Distribution of premotoneurons for jaw-closing and jaw-opening motor nucleus receiving contacts from axon terminals of primary somatosensory cortical neurons in rats. *Brain Res* 1275:43-53.
- Yoshida A, Taki I, Chang Z, Iida C, **Haque T**, Tomita A, Seki S, Yamamoto S, Masuda Y, Moritani M, Shigenaga Y (2009) Corticofugal projections to the trigeminal motoneurons innervating antagonistic jaw muscles in rats as demonstrated by anterograde and retrograde tract-tracing. *J Comp Neurol* 514:368-386.

REFERENCES

Atsushi Yoshida, D.D.S., Ph.D.

Professor and Chair
 Department of Oral Anatomy and Neurobiology
 Graduate School of Dentistry, Osaka University
 1-8 Yamadaoka, Suita, Osaka 565-0871
 JAPAN
yoshida@dent.osaka-u.ac.jp

Takafumi Kato, D.D.S., Ph.D.

Associate Professor
 Department of Oral Anatomy and Neurobiology
 Graduate School of Dentistry, Osaka University
 1-8 Yamadaoka, Suita, Osaka 565-0871
 JAPAN
takafumi@dent.osaka-u.ac.jp

Ujjal K Bhawal, B.D.S., Ph.D.

Assistant Professor
 Department of Biochemistry and Molecular Biology
 Nihon University School of Dentistry at Matsudo
 2-870-1 Sakaecho-Nishi,
 Matsudo, Chiba 271-8587
 JAPAN
bhawal.ujjal.kumar@nihon-u.ac.jp