CURRICULUM VITAE

Jyoti N. Sengupta, MSc, Ph.D.
Professor of Medicine
Division of Gastroenterology and Hepatology
Department of Medicine
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3. **Place of Birth:** India

4. **Citizenship:** USA

5. **Education:** 1981 MSc in Physiology, University of Calcutta, India
   1983 Ph.D in Physiology, University of Calcutta, India

6. **Postdoctoral Training and Faculty Appointments:**

   1985-1986: Postdoctoral Fellow, College of Pharmacy, Ohio State University, OH
   1986-1990: Research Associate, Div. Gastroenterology, Harvard Medical School/Beth Israel Hospital.
   1991-1997: Assistant Research Scientist, Dept. Pharmacology, University of Iowa, IA.

7. **Military Service:** None

8. **Faculty Appointments (Include Secondary Appointments):**

   1990-1991: Instructor in Medicine, Harvard Medical School/ Beth Israel Hospital, MA.
   1998-2000: Associate Director, Div. Gastroenterology, AstraZeneca, Mölndal, Sweden
   2000-2005: Assistant Professor, Div. Gastroenterology, Dept. Medicine, MCW, WI.
   2006-present: Associate Professor, Department of Medicine, MCW, WI.
   2004-present: Associate Professor (Secondary appointment), Pediatric Gastroenterology, MCW, WI.
   2009–present: Faculty member of F1000, UK

9. Administrative Appointments: 20012- present:

Committee member of IACUC, MCW

10. Educational Administrative Positions: 2009- present:

Faculty Member of Neuroscience PhD committee, MCW, 2012-present.

11. Hospital and Clinic Administrative Appointments: Not applicable

12. Hospital Staff Privileges: None

13. Specialty Boards and Certification: Not applicable

14. Teaching Assignment:

(1) Neuroscience Doctoral Program (2010-present)

Teaching two areas including (1) Intrinsic pain mechanism and (3) Autonomic and humoral regulation of body function. The duration of each class is 1 hour and 30 minutes.

(2) Neuroanatomy Lab Teaching (2009-present).

Assists Dr. Beth Krippendorf in Neuroanatomy lab teaching for MCW medical students. Especially the spinal cord and pontomedullary areas of the nervous system.

(3) Interdisciplinary Life Science Program (2009-1011)

Taught neurophysiology of pain mechanism to MCW IDP students.

15. Awards and Honors:

1977-1979: Junior Research Fellow of the University Grants Commission of India.

1980-1983: Senior Research Fellow of the University Grants Commission of India.

1985 (6 months): Research Associate of the University Grants Commission of India.

2003: Recipient of Senior Basic Science Research Scientist Award by International Foundation of Functional Gastrointestinal Disorders (IFFGD).

2009: Recipient of 2009 Best Basic Science Research Scientist of Functional Brain-Gut Society.

16. Memberships in Professional and Honorary Societies:

1991-2009	American Gastroenterology Association (AGA)
1991-present	Society for Neuroscience (SFN), USA
1991-present	International Association for Study of Pain (IASP)
1998-present	American Physiological Society (APS), USA
2001-present	American Motility Society (AMS), USA

April, 2017-present American Urology Asssociation (AUA), USA

17. Journal Reviewer:

1. Gastroenterology
2. Journal of Physiology
3. Journal of Neurophysiology
4. Journal of Neuroscience
5. Neuroscience
6. Journal of Neurogastroenterology and Motility
7. American Journal of Physiology
8. Journal of Gastroenterology and Hepatology
9. Neuroscience Letter
10. Autonomic Neuroscience
11. Gut
12. PAIN
13. Journal of Pain

18. Regional/Local/Appointed Leadership and Committee Positions: None

19. National & International Elected/Appointed Leadership and Committee Positions:

(1) Chairman of the 2nd plenary session entitled – "Recent advances in understanding the sensory function and dysfunction of the foregut." World Organization of Special Studies on Disease for the Esophagus. Location and Date: Avignon, France, September 5th, 2006.
(2) Chairperson of the session entitled – 'Sensory and motility disorders of the esophagus" in Digestive Disease Week. Location: Washington DC, May 2006.

NIH Council of Scientific Research Group:

1. Member of NIH Review Committee of **ZRG1 CFS (01)** (Chronic Fatigue, Fibromyalgia and Temporomandibular Dysfunction Syndromes), NIH Special Emphasis Group, USA, 2010.
2. Member of NIH Review Committee of **ZRG1 DKUS-N (05)**, NIH Kidney & Urological Science Special Emphasis Group, USA, 2013-14.
3. Member of NIH Review Committee of **ZRG1 HDM-Q (02)**, NIH Health Delivery Methodologies Special Emphasis Group, USA, 2013-14.
4. Member of NIH Study Section of **Urogenital Physiology and Pathophysiology (UGPP),** 2014-present.
5. Member of NIH Study Section of **NIDDK Review of P20 Developmental Centers for Interdisciplinary Research in Benign Urology (P20),** May 20, 2017**.**
6. Review Meeting: NIGMS SCORE Neuroscience Review (**ZGM1 RCB-5 (SC**)**,** June 29th, 2017**.**

Member of other review committee:

National:

1. Member of review committee of **National Science Foundation**, USA, 2009-2010.
2. Member of review committee of **American Gastroenterology Association**, USA, 2009-2012.

International:

3. Member of review committee of **Wellcome Trust Research Foundation**, UK, 2012-2013.
4. Member of PhD committee, Department of Physiology, University of Melbourne, Australia, 2011.

Collaborative Research:

2009: Research on integrative function of gastric pace making functions. Collaborator: Terry Powley, Professor-Department of Psychology, Purdue University, Purdue, Indiana.
Reference:
Miranda A, Mickle A, Medda B, Zhang Z, Phillips RJ, Tipnis N, Powley TL, Shaker R, Sengupta JN. Altered mechanosensitive properties of vagal afferent fibers innervating the stomach following gastric surgery in rats. Neuroscience. 162: 1299-1306. 2009.

2014-present: Effects of selective GABAA receptors pain signaling processing the spinal cord. Collaborator: Dr. James M Cook, University Distinguished Professor, Dept. Chemistry & Biochemistry, University of Wisconsin Milwaukee.

20. Research Grants, Contracts, Awards, Projects:

Peer Review

NIH:

Title**:** Neuoromolecular Mechanisms of Chronic Pelvic Pain in Neonatally-induced Cystitis
Source: NIH, 1R01DK099201-01A1
Role: Principal Investigator
Date: 06/01/2014-05/31/2019
Direct Funds: $279,032/years for 5 years.

Title: Neural Plasticity and the Development of Overlapping Pelvic Pain
Source: NIH, 1R56DK089493-01
Date: 08/10/2010 – 06/30/2011
Role: Principal Investigator
Direct Funds: $373,927/year

Title: Mechanism of Esophageal Pain
Source: NIH, 1 RO1 DK062312-01A2
Date: 07/01/04-06/30/09
Role: Principal Investigator
Direct Funds: $150,000/year

Title: Mechanism of Esophageal Pain, Supplemental of Minority Training Program
Source: NIH, 1 RO1 DK062312-01A2
Date: 07/01/06-06/30/09
Role: Principal Investigator and Mentor
Direct Funds: $90,000/year

Title: Primary visceral afferents in pain
Source: NIH, 1 RO1 NS35790-01A1

Role: Principal Investigator
Date: 06/01/1997-03/31/2001
Direct Funds: $150,000/years for 5 years.

Institutional & academic faculty grants:

Title: Peripheral Mechanism of Esophageal Pain
Source: MCW Digestive Disease Center
Date: 08/01/02-07/01/03
Role: Principal Investigator
Direct Funds: $25,000/year

Title: Neurophysiological Basis of Visceral Hypersensitivity
Source: MCW New Faculty Grant
Date: 05/01/01-04/01/02
Role: Principal Investigator
Direct Funds: $12,500/year

Title: Role of Viscero-visceral Convergence and Chronic Pelvic Pain
Source: MCW Digestive Disease Center
Date: 08/01/05-12/30/06
Role: Principal Investigator
Direct Funds: $20,000/year

Title: Microglia-a new target for inflammation induced visceral hyperalgesia
Source: MCW Digestive Disease Center
Date: 04/01/12-03/30/13
Role: Principal Investigator
Direct Funds: $25,000/year

Title: Chronic abdominal pain and central modulation.
Source: MCW Digestive Disease Center
Date: 04/01/12-03/30/13
Role: Principal Investigator
Direct Funds: $20,000/year

Title: Visceral Analgesic Effect of Probiotics.
Source: MCW Digestive Disease Center
Date: 11/01/14-10/31/15
Role: Principal Investigator
Direct Funds: $20,000/year

Non-peer review Industrial/Pharmaceutical grants

Title: Neural Mechanism of Cardiac Contractility Modulation of Left Ventricular Function
Source: Impulse Dynamics, Inc.,
Date: 05/01/14-01/31/15
Role: Principal Investigator

Title: The Role of Microbiome in Chronic Visceral Hypersensitivity
Source: Mead Johnson Nutrition, Inc.,
Date: 04/01/12-03/30/14
Role: Principal Investigator
Direct Funds: $20,000/4 months

Title: The effect of GABAB positive allosteric modulator ADX71441 in visceral pain
Source: ADDEX Pharmaceutical Inc.,
Date: 04/01/15-03/30/16
Role: Principal Investigator
Direct Funds: $8,000/annum

Title: Mechanism of action of $5HT_4$ Agonists in Visceral Pain and GI Motility
Source: Procter & Gamble, Inc.,
Date: 08/01/07-12/30/09
Role: Principal Investigator
Direct Funds: $206,000/year

Title: Activation of Gastric Vagal Afferents
Source: Impulse Dynamics, Haifa, Israel
Role: Co-investigator
Dates: 06/01/01-05/31/02
Direct Funds: $100,000/year

Title: Role of VR1/TRPV in acid-induced sensitization of vagal afferent fibers
Source: AstraZeneca, Mölndal, Sweden.
Role: Principal Investigator
Dates: 06/01/03- 12/31/04
Direct Funds: $10,000

21. Invited Lectures/Workshops/Presentations/Site Visits:

International

Author(s): Sengupta JN, Xin S and Gebhart GF
Title: Polymodal Mechanosensitive Pelvic nerve afferent fibers innervating the colon of the rat.
Meeting/Event: International Union of Physiological Society (IUPS)
Location and Date: St. Petersburg, Russia, August, 1997

Author(s): Sengupta JN and Gebhart GF
Title: Role of Pelvic nerve afferent fibers in Visceral Pain
Meeting/Event: Little Brain Big Brain
Location and Date: Melbourne, Australia, August 1998

Author(s): Sengupta JN
Title: Role of Pelvic nerve afferent fibers in Visceral Pain
Meeting/Event: Enteric Nervous System Symposium
Location and Date: Göteborg, Sweden, September 1998

Author(s): Sengupta JN.
Title: Neural Mechanism of Visceral Pain
Meeting/Event: Karolinska Institute,
Location and Date: Stockholm, Sweden, November 1998.

Author(s): Sengupta JN.
Title: Altered Visceral Sensation in Response to Somatic Pain in the Rat.
Meeting/Event: Little Brain Big Brain
Location and Date: Barcelona, Spain, September 2003

Author(s): Sengupta JN.
Title: Early-life Events Leading to Visceral Hypersensitivity
Meeting/Event: Gastrointestinal Research Unit, Queen's University
Location and Date: Queens, Canada, September 2007.

National

Author(s): Sengupta JN.
Title: An Overview of Esophageal Sensory Receptors
Meeting/Event: Second Multi-Disciplinary International Symposium of Supra-Esophageal Complications
Location and Date: Seattle, Washington DC, July 1998

Author(s): Sengupta JN.
Title: Peripheral Mechanism of Visceral Pain: physiology and pharmacology
Meeting/Event: International Motility Meeting
Location and Date: Madison, WI, October 2001

Author(s): Sengupta JN.
Title: Electrophysiological Recording from the Neurons Controlling Sensory and Motor Functions of the Esophagus.
Meeting/Event: Third Multi-Disciplinary International Symposium of Supra-Esophageal Complications
Location and Date: Boston, MA, July 2000

Author(s): Sengupta JN.
Title: Effect of Intraesophageal Acid on Responses of Laryngeal Muscles and Motoneurons of the Cat
Meeting/Event: American Gastroenterology Association
Location and Date: New Orleans, LO, May, 2004.

Author(s): Sengupta JN.
Title**:** Esophageal Sensory Receptors: Vagal and Spinal Afferents Meeting/Event: Multidisciplinary International Symposium on Supraesophageal Complication of Reflux Disease.
Location and Date: Miami, FL, February 23, 2005.

Author(s): Sengupta JN.
Title: Role of Central Serotonergic System in Visceral PainMeeting/Event: Neurogastroenterology and Motility Meeting
Location and Date: St.Louis, MO, September, 2011.

Author(s): Sengupta JN.
Title: Effect of the gastrointestinal environment on development and function of the central nervous systemMeeting/Event: Mead Johnson Nutrition, Inc.,
Location and Date: San Francisco, CA, October, 2012.

Author(s): Sengupta JN.
Title: Most Important Advances in Visceral Pain in the last YearMeeting/Event: Digestive Disease Week, 2014/American Gastroenterology Association, USA
Location and Date: Chicago, IL, May 6th, 2014.

Regional: None

Local: Several presentations were given locally at the University Of Wisconsin Madison School Of Veterinary Science.

22. Teaching & Supervisor Activities:

Graduate student teaching & PhD supervising:

In Medical College of Wisconsin:

(1) Served in PhD supervisor board of Marie Barabas, Anatomy and Cell biology Department, 2011-2014.
(2) Currently, I am a faculty of Neuroscience Doctoral Program in the Medical College of Wisconsin. I teach Sensory Physiology related to pain, Autonomic and Central Regulation of homeostasis, and Neuromolecular mechanisms of neuropathic pain (2012- present) to students in Neuroscience Doctoral Program.
(3) I also taught 'Pain and Cellular Mechanism' class to students in Interdisciplinary Program (IDP), 2012.
(4) I am also a staff member of Medical Neuroscience Lab for instructing Spinal Cord and Sensory System Histology and brainstem (Lab 6), 2011-present.

International:

(5) Member of PhD committee of Dr. Haiheng Dong (2010), Division of Basic Medical Sciences, Faculty of Medicine, Memorial University of Newfoundland, St. John's, Newfoundland, Canada A1B 3V6.
(6) Member of PhD committee of student of Joel Bornstein (2012), Department of Physiology, University of Melbourne, Medical Building, Cnr Grattan St. and Royal Pde., Parkville, VIC 3010, Australia

Medical student teaching

I have trained several medical students and GI fellows in basic science research. In the past, I trained and mentored several GI fellows in Beth Israel Hospital/Harvard Medical School in Boston. I served as an instructor in Gastroenterology in Harvard Medical School.

I have trained following students, fellows and residents in my lab.

1. Dr. Adrian Miranda (2002-2006): Dr. Miranda worked as research fellow in my laboratory from August 2002 to July 2004. In 2006, Dr. Miranda was promoted as a faculty of Pediatric GI Department. He continued research under my mentorship and received NIH KO8 grant. One of his research papers has been judged the best by MCW research committee. His work was also judged as the best presentation in North American Society of Pediatric Gastroenterology, Hepatology and Nutrition (NASPHAGAN). He recently received research award from Children's Research Foundation. Dr. Miranda is continuing basic research in my lab. He has also established Visceral Pain Clinic in Children Hospital. He has now been promoted to the rank of Associate Professor.

2. Dr. Shachar Peles (2002-2006): Dr. Peles has been trained by me in basic science research. He worked in my lab for five years. He has been awarded as the Best Young Scientist two consecutive years by Federation of Digestive Health and Nutrition (FDHN). For his research presentation he has been awarded Young Scientist Travel Grant by International Association of Study of Pain (IASP) to attend World Congress of Pain in Sydney, Australia in August 2005. He completed medical training in MCW and residency in UW-Madison. He is currently working as hospitalist in UW-Madison.
3. Dr. Enisa Hodzic (2004-2009): Enisa joined my laboratory as lab technician and worked for three years to get the training in laboratory research. She then successfully passed the MCAT exam and got admission in Medical School. She is currently doing residency in pediatrics at SUNY Upstate, Syracuse, NY.

4. Dr. Jon King (2006-2009): Dr. King completed medical training in MCW and is currently working as ER specialist. He worked on an animal model that mimics the neonatal gastric suction-induced manifestation of visceral hypersensitivity in the adulthood.

5. Dr. Sarada Vemareddy (2006-2009): Dr. Vemareddy was a foreign medical graduate who received basic science research training in my laboratory. She appeared for USMELE examination while working in my lab and successfully passed all three steps in relatively short period of time. She finished residency in the University of Minnesota Medical School and is currently practicing family medicine in Racine, Wisconsin.

6. Dr. Ossama Abu-Hattoum (2007-2010): Dr. Abu-Hatoum is a general surgeon from Haifa, Israel. He received training in laboratory research first two years in my lab. Currently, he is a senior lecturer in general surgery at HaEmek Hospital, Afula, Israel.

7. Dr. Cass Smith (2006-2009): Dr. Smith received two years of training in my lab. He was instrumental to develop neonatal model gastric suction-induced visceral hyperalgesia. He is currently a pediatric gastroenterologist in St.Lukes Hospital, Boise, Idaho.

8. Dr. Eric Nordstrom (2005-2008): Dr. Nordstrom received laboratory training in the lab for two years. He is currently a physician in University of Colorado Hospital.

9. Dr. Yue Zheng (2010-2012): Dr. Zheng was visiting scientist from People Republic of China. She worked two years in my lab to get training in basic science research. Dr, Zheng is currently a clinician Beijing Hospital.

10. Aaron Mickle (2011-2012): After finishing his undergraduate study in biology Aaron joined my lab as lab technician. He worked three years in the lab and published 4 papers (2 in

Neuroscience and 2 in PAIN). In 2010, Aaron has joined Neuroscience Doctoral Program in University of Iowa, Iowa City.

Post-doctoral fellow training:

Dr. Pradeep Kannampalli (2010–present): Dr. Kannampalli received his training Pharmacology and Toxicology in Seoul, South Korea. He is currently working on the role of microglia in visceral hyperalgesia.

Dr. Jian Zhang (2014-present): Research Associate in Dr. Sengupta's laboratory.

Faculty Development/Continuing Medical Education: None

Community/Lay Public: None

23. MCW Students, Faculty, Residents or Fellows Mentored:

1. Dr. Harjot Sidhu: Dr. Siddhu was GI resident from 2001 to 2004. She received instruction in basic science research under my guidance to present in GI Research Conference.
2. Dr. Cherian Abraham: Dr. Abraham was GI resident from 2000 to 2003. He received instruction in basic science research under my guidance present in GI Research Conference.
3. Dr. John Potter: Dr. Potter was GI resident from 2001 to 2004. He received instruction in basic science research under my guidance present in GI Research Conference.
4. Dr. Arthi Sanjeevi: Dr. Sanjeevi joined the Division of Gastroenterology in 2004 and she continued her training until 2007. She received training in basic science research under my guidance present in GI Research Conference.
5. Dr. Jashmohan Singh Bajaj: Dr. Bajaj was GI fellow from 2002 to 2005. He received training in basic science research under my guidance present in GI Research Conferences. He was promoted as Assistant Professor in Medicine in MCW. He is currently associate professor of medicine at Virginia Commonwealth University.
6. Dr. David Knuff: Dr. Knuff has received training in basic science under my guidance. He is supported by NIH training grant.
7. Dr. Adeyemi Lawal: Dr. Lawal joined the Division of Gastroenterology in 2004 and she will be continuing her training until 2007. He received training in basic science research under my guidance present in GI Research Conference.

24. Community Service Activities:

2003-2004: Vice-President, Menomonee Falls Camera Club, Wisconsin.
2004-2005: President, Menomonee Falls Camera Club, Wisconsin.
2005-present: Program Chairperson of Wehr Nature Center Camera Club, Wisconsin.
2008-2013: President, Wehr Nature Center Camera Club.
2005-present: Bike rider of 'Wheeling for Healing' Cancer Foundation, Menomonee Falls Community Hospital.
2011-present: Bike rider for 'Trek100', Childhood Cancer Research, MaccFund Cancer Research, Wisconsin.
2011-2014: Board member of Bengali Cultural Society of Milwaukee (BCSM), Wisconsin.
2016 June-present: Voluntary service in ER Department, Community Memorial Hospital, Menomonee Falls, Wisconsin.

25. Programmatic Developments: None

26. Continuing Medical Education: Not applicable

27. Bibliography

Refereed Journal Publications/Original Papers:

1. Koley J, **Sengupta JN**, Koley BN. Sympathetic afferent from avian abdomen. *IRCS Med. Sci.* 7: 245, 1979.K

2. Koley J, **Sengupta JN**, Pal P, Bhattacharyya S, Koley BN. Visceral afferent in caudal mesenteric nerve of the duck. *IRCS Med.Sci*. 7: 627, 1979.

3. Koley BN, Bhattacharyya S, Pal P, **Sengupta JN,** Koley J. Demonstration of streptomycin blockade of spinal gamma motorneuron in decerebrate cats. *IRCS Med. Sci.* 7: 300, 1979.

4. Koley BN, Bhattacharyya S, Pal P, **Sengupta JN,** Koley J. Discriminating neuromuscular blocking effects of streptomycin on intrafusal muscle fibers of cats. *IRCS Med. Sci*. 8: 444-445, 1980.

5. Koley BN, Pal P, Bhattacharyya S, **Sengupta JN**, Koley J. Coronary afferent in the thoracic sympathetic nerve of the cat. *IRCS Med. Sci*. 8: 323-324, 1980.

6. Koley J, **Sengupta JN,** Pal P, Bhattacharyya S, Sarkar SP, Koley BN. Visceral receptors and their afferent in caudal mesenteric nerve of the duck. *Brit. Poul. Sci*. 23: 315-324, 1982.

7. Koley J, Saha JK, Ghosh TK, **Sengupta JN,** Medda BK, Koley BN. The effect of nicotine on perfused heart of toad (*bufo melanostictus*) in situ. *Ind. J. Physiol. Allied Sci.* 37: 145-150, 1983.

8. Koley J, **Sengupta JN,** Koley BN. Sensory receptors and their afferent in caudal sympathetic nerve of the domestic duck. *Brit. Poul. Sci.* 25: 173-186, 1984.

9. **Sengupta JN,** Hamada A., Miller DD, Patil PN. Interaction of enantiomers of hydroxy tolazoline with adrenoreceptors. *Naunyn-Schmiedberg's Arch Pharmacol*. 335: 391-396, 1987.

10. Pal P, Koley J, Bhattacharyya S, **Sengupta JN**, Koley BN. Cardiac nociceptors and ischemia: Role of sympathetic afferent in cat. *Jpn. J. Physiol*. 39: 131-144, 1989.

11. **Sengupta JN,** Kauvar D, Goyal RK. Characteristics of vagal esophageal tension-sensitive afferent fibers in the opossum. *J. Neurophysiol*. 61: 1001-1010, 1989.

12. Saha JK, **Sengupta JN**, Goyal RK. Effect of bradykinin on opossum esophageal smooth muscle: Evidence for novel bradykinin receptors. *J. Pharmacol. Exp. Ther*. 252: 1012-1020, 1990.

13. **Sengupta JN**, Saha JK, Goyal RK. Stimulus-response function studies of esophageal mechano-sensitive nociceptors in sympathetic afferent in the opossum. *J. Neurophysiol.* 64: 796-812, 1990.

14. Saha JK, **Sengupta JN,** Koley J, Koley BN. Effect of ATP on smooth muscle of urinary bladder of the toad. *Arch. Int. Pharmacodyn*. 304: 93-104, 1990.

15. Saha JK, **Sengupta JN**, Goyal RK. Pharmacologic characterization of an inhibitory bradykinin receptor on opossum lower esophageal sphincter. *J. Pharmacol. Exp. Ther.* 259: 265-273, 1991.

16. Saha, J.K., **Sengupta JN**, Goyal RK. Role of chloride ions in the lower esophageal sphincter tone and relaxation. *Am. J. Physiol*.. 263: G115-G126, 1992.

17. **Sengupta JN,** Saha JK, Goyal RK. Differential sensitivity to bradykinin of esophageal distension-sensitive mechanoreceptors in vagal and sympathetic afferent of the opossum. *J. Neurophysiol.* 68: 1053-1067, 1992.

18. Euchner I, **Sengupta JN,** Gebhart GF, Miller ST. Characterization of upper thoracic spinal cord neurons to esophageal distension in the rat. *J.Neurophysiol.* 69: 868-883, 1993.

19. **Sengupta JN,** Gebhart GF. Characteristics of mechanosensitive pelvic nerve afferent fibers innervating the colon of the rat. *J.Neurophysiol*. 71: 2046-2060, 1994.

20. **Sengupta JN,** Gebhart GF. Characteristics of mechanosensitive pelvic nerve afferent fibers innervating the urinary bladder of the rat. *J. Neurophysiol*. 72: 2420-2430,1994.

21. Hummel T, **Sengupta JN**, Meller ST, Gebhart GF. Responses of T2-4 spinal cord neurons to irritation of the lower airways in the rat. *Am*. *J. Physiol.* 42: R1147-R1157, 1997.

22. Su, X., **Sengupta JN**, Gebhart GF. Effects of kappa opioid receptor agonists on mechanosensitive pelvic nerve afferents innervating the urinary bladder of the rat. *J. Neurophysiol*. 77: 1566-1580,1997.

23. Traub RJ, Lim F., **Sengupta JN**, Meller ST, Gebhart GF. Noxious distension of viscera results in second order sensory neurons receiving 'sympathetic' and 'parasympathetic' input. *Neurosci. Lett*. 180: 71-75, 1994.

24. **Sengupta JN,** Xin SU and Gebhart GF. κ, but μ or δ, opioids attenuate responses to distension of afferent fibers innervating the rat colon. *Gastroenterology*. 111: 968-980, 1996.

25. Traub R, **Sengupta JN**, Gebhart GF. Differential c-Fos expression in the nucleus of the solitary tract and spinal cord following noxious gastric distension in the rat. *Neuroscience*. 74: 873-884, 1996.

26. Su, X., **Sengupta JN**, Gebhart GF. Effects of opioid receptor-selective agonists on responses of pelvic nerve afferents to noxious colorectal distension. *J. Neurophysiol*. 78: 1003-1012, 1997.

27. **Sengupta J.N,** Snider A, Su, X, Gebhart GF. Peripheral Effects of Opioids in Chronically Inflamed Colon. *PAIN* 79 (3) 1999.

28. Abe T, Morgan D, **Sengupta JN**, Gebhart GF, Gutterman DD. Attenuation of ischemia-induced activation of cardiac sympathetic afferents following brief myocardial ischemia in cats. *J. Auton. Nerv. Syst.* 71: 28-36, 1998.

29. Ozaki N, **Sengupta JN,** Gebhart GF. Mechanosensitive properties of gastric vagal afferent fibers in the rat. *J. Neurophysiol.* 82: 2210-2220, 1999.

30. Ozaki N, **Sengupta JN,** Gebhart GF. Effects of opioids on mechanosensitive gastric vagal afferent fibers. *J. Neurophysiol*. 83: 2209-2216, 2000.

31. Ozaki N, Bielefeldt K, **Sengupta JN**, Gebhart GF. Models of gastric hyperalgesia in the rat. Am J Physiol Gastrointest Liver Physiol. 2002; 283: G666-G676.

32. McRoberts JA, Coutinho SV, Marvizón JC, Grady EF, Tognetto M, **Sengupta JN**, Ennes HS, Chaban VV, Amadesi S, Creminon C, Lanthorn T, Geppetti P, Bunnett NW, Mayer EA. Role of peripheral N-methyl-D-aspartate (NMDA) receptors in visceral nociception in rats. Gastroenterology. 2001; 120: 1737-1748.

33. Zhou M, **Sengupta JN**, Gebhart GF. Biphasic modulation of spinal visceral nociceptive transmission from the rostroventral medulla in the rat. J.Neurophysiol. 87: 2225-2236, 2002.

34. Ozaki N, Bielefeldt K., **Sengupta, JN,** Gebhart GF. Models of visceral hyperalgesia. *Am. J. Physiol*. 283: G666-G676, 2002.

35. **Sengupta, J.N**., Medda BK, Shaker R. Effect of $GABA_B$ receptor agonist on distension-sensitive pelvic nerve afferent fibers innervating the Colon of the Rat. *Am. J. Physiol.* 283: G1343-G1351, 2002

36. Peles S, Petersen J, Aviv R, Policker S., Abu-Hatoum O., Ben-HAIM SA., Gutterman DD., **Sengupta JN**. Enhancement of antral contractions and vagal afferent signaling with synchronized electrical stimulation. *Am J Physiol*. 285: G577-G585, 2003.

37. Miranda A, Peles S, Rudolph C, Shaker r., **sengupta JN**. Altered visceral sensation in response to somatic pain in the rat. *Gastroenterology*. 126: 1082-1089, 2004.

38. **Sengupta JN**, Petersen J, Peles S., Shaker R. Response properties of antral mechanosensitive afferent fibers and effects of ionotropic glutamate receptor antagonists. *Neuroscience* 125: 711-723, 2004.

39. Peles S, Miranda A, Shaker R, **Sengupta JN**. Acute Nociceptive Somatic Stimulus Sensitizes Neurons in the Spinal Cord to Colonic Distension in the Rat. *J Physiol*. 560: 291-302, 2004.

40. Medda BK., **Sengupta JN.,** Lang IM., Shaker R. Response Properties of the Brainstem Neurons of the Cat Following Intra-esophageal Acid-Pepsin Infusion. Neuroscience. 135: 1285-1294, 2005.

41. Miranda A, Peles S, Shaker R, Rudolph C, **Sengupta JN**. Neonatal nociceptive somatic stimulation differentially modifies the activity of spinal neurons in rats and results in altered somatic and visceral sensation. J Physiol. 572: 775-785, 2006.

42. Miranda A, Peles S, McLean PG, **Sengupta JN.** Effects of the 5-HT3 receptor antagonist, alosetron, in a rat model of somatic and visceral hyperalgesia. PAIN 126: 54-63, 2006.

43. Banerjee B, Medda BK, Lazarova Z, Bansal N, Shaker R, **Sengupta JN.** Effect of Reflux-Induced Inflammation on Transient Receptor Potential Vanilloid One (TRPV1) Expression in Primary Sensory Neurons Innervating the Esophagus of Rats. Neurogastrol. Motil. 19: 681-691, 2007.

44. Smith C, Nordstrom E, **Sengupta JN,** Miranda A. Neonatal gastric suctioning results in chronic somatic and visceral hyperalgesia: role of corticotropin releasing factor. Neurogastrol. Motil. 19: 692-699, 2007.

45. Miranda A, Nordstrom E, Smith C, **Sengupta JN.** The Role of TRPV1 in Mechanical and Chemical Visceral Hyperalgesia Following Experimental Colitis. Neuroscience 148: 1021-1032, 2007.

46. Banerjee B, Medda BK, Zheng Y, Miller H, Miranda A, **Sengupta JN**, SHAKER R. Alterations in *N*-methyl-D-aspartate receptor subunits in primary sensory neurons following acid-induced esophagitis in cats. Am J Physiol Gastrointest Liver Physiol 296: G66-G77, 2009.

47. Peles S, Medda BK, Zhang Z, Banerjee B, A. Lehmann, R. Shaker, **Sengupta JN**. Differential Effects of TRPV1 Antagonists in Acid-induced Excitation of Esophageal Vagal Afferent Fibers of Rats. Neuroscience. 161: 515-525, 2009.

48. Miranda A, Mickle A, Medda B, Zhihong Z, Phillips RJ, Tipnis N, Shaker R, Powley TL, **Sengupta JN**. Gastric surgery results in neuronal plasticity and chronically alters the vagal afferent mechanotransduction properties in rats. Neuroscience. 162: 1299-1306, 2009.

49. Banerjee B, Medda BK, Schmidt JL, Zheng Y, Shaker R, **Sengupta JN.** Altered Expression of $P2X_3$ in Vagal and Spinal Afferents Following Esophagitis in Rats. Histochemistry and Cell Biology 132: 585-597, 2009.

50. Mickle A, Sood M, Zhang Z, Shahmohammadi G, **Sengupta JN**, Miranda A. Antinociceptive effects of melatonin in a rat model of post-inflammatory visceral hyperalgesia: a centrally mediated process. Pain, 149: 555-564. 2010. (PMC2884285).

51. Miranda A, Mickle A, Schmidt J, Zhang Z, Shaker R, Banerjee B, **Sengupta JN**. Neonatal cystitis-induced colonic hypersensitivity in adult rats: a model of viscero-visceral convergence. Neurogastroenterol Motil. 2011; 23: 683-e281 (PMC3117950).

52. Banerjee B, Medda BK, Schmidt J, Lang IM, **Sengupta JN**, Shaker R. Neuronal plasticity in the cingulate cortex of rats following esophageal acid exposure in early life. Gastroenterology. 2011; 141:544-552. (PMC3152593).

53. Mickle A, Kannampalli P, Bruckert M, Miranda A, Banerjee B, **Sengupta JN**. Pronociceptive Effect of 5-HT_{1A} Receptor Agonist on Visceral Pain Involves Spinal NMDA Receptor. Neuroscience 219, 243-254, 2012. (PMC3402596).

54. **Sengupta JN**, Pochiraju s, Kannampalli P, Bruckert M, Addya S, Yadav P, Miranda A, Shaker R, Banerjee B. MicroRNA-mediated GABA Aα-1 receptor subunit down-regulation in adult spinal cord following neonatal cystitis-induced chronic visceral pain in rats. Pain. 154: 59-70, 2013. (PMC3535325)

55. Banerjee B, Medda BK, Pochiraju S, Kannampalli P, Lang IM, **Sengupta JN**, Shaker R. AMPA receptor subunits expression and phosphorylation in cingulate cortex in rats following esophageal acid exposure. Neurogastroenterol Motil. 25: 973-e776, 2013. (24118589)

56. **Sengupta JN**, Mickle A, Kannampalli P, Spruell R, MCrorie J, Shaker R, Miranda A. Visceral Analgesic Effect of 5-HT_4 Receptor Agonist in Rats Involves the Rostroventral Medulla (RVM). Neuropharmacol 79, 345-358, 2014. (PMID: 24334068).

57. Kannampalli P, Pochiraju S, Bruckert M, Shaker R, Banerjee B, **Sengupta JN**. Analgesic effect of minocycline in rat model of inflammation-induced visceral pain. Eur J Pharmacol. 727: 87-98, 2014.

(PMC3984928)

58. Miranda A, Mickle A, Bruckert M, Kannampalli P, Banerjee B, **Sengupta JN**. NMDA Receptor Mediates Chronic Visceral Pain Induced by Neonatal Noxious Somatic Stimulation. Eur J Pharmacol. 744: 28–35, 2014.

59. Kannampalli P, Pochiraju S, Chichlowski M, Berg BM, Rudolph C, Bruckert M, Miranda A, **Sengupta JN.** Probiotic Lactobacillus rhamnosus GG (LGG) and prebiotic prevent neonatal inflammation-induced visceral hypersensitivity in adult rats. Neurogastroenterol Motil. 26: 1694-1704, 2014. (PMID: 25298006).

60. Kannampalli P, Babygirija R, Zhang J, Poe MM, Li G, Cook JM, Shaker R, Banerjee B and **Sengupta JN**. Neonatal Bladder Inflammation Induces Long-term Visceral pain and Altered Responses of Spinal Neurons in Adult Rats. Neuroscience 346: 349–364, 2017.

61. Babygirija R, Sood M, Kannampalli P, **Sengupta JN**, Miranda A. Percutaneous electrical nerve field stimulation modulates central pain pathways and attenuates post-inflammatory visceral and somatic hyperalgesia in rats. Neuroscience. 2017; 356: 11-21. (PMID: 28526575).

62. Kannampalli P, Sonia-Maria Poli, Christelle Boléa and **Sengupta JN**. Analgesic effect of ADX71441, a Positive Allosteric Modulator (PAM) of $GABA_B$ Receptor in a rat model of Bladder Pain. Neuropharmacology, 2017 (in press).

63. Zhang J, Yu J, Kannampalli P, Linghui Nie, Hui Meng, Medda BK, Shaker R, **Sengupta JN**, and Banerjee B. miRNA-mediated downregulation of KCC2 and VGAT expression in spinal cord contributes to neonatal cystitis-induced visceral pain in rats. PAIN, 2017 (accepted).

Books, Chapters & Reviews:

1. Goyal RK, **Sengupta JN.** Neurophysiology of chest pain. *Eur. J. Gastr. Hepat*. 2: 4-7, 1990.

2. **Sengupta JN**, Gebhart GF. The Sensory innervation of the colon and its modulation. Current Opinion in Gastroenterology. 14: 14-17, 1998.

3. **Sengupta JN**. An overview of esophageal sensory receptors. *American Journal of Medicine* 108 (2A): 1-3, 2000.

4. **Sengupta JN**. Electrophysiological recording from neurons controlling sensory and motor functions of the esophagus. *American Journal of Medicine* 111: 169-173, 2001.

5. Goyal RK, **Sengupta JN**, Saha JK. Properties of esophageal mechanosensitive receptors. In: *Advances in the innervation of the gastrointestinal tract,* edited by G.E.Holle and J.D.Wood. Elsevier, Amsterdam, pp 523-537, 1992.

6. Gebhart GF, Meller ST, Euchner I, **Sengupta JN.** Modeling of Visceral Pain. In: *New Trends in Referred Pain and Hyperalgesia,* edited by L. Vecchiet, D. Albe-Fessard. U. Lindbolm., and M.A. Giamberardino. Elsevier Science Publishers. Pp 129-148, 1993.

7. **Sengupta JN,** Gebhart GF. Gastrointestinal afferent fibers and visceral sensations. In: *Physiology of the Gastrointestinal tract*. Edited by L.R. Johnson et al., Raven Press. Pp483-519, 1994.

8. Gebhart GF, **Sengupta JN.** On Visceral Nociceptors. In: Peripheral neurons in nociception: Physio-pharmacological aspects. edited by J.M. Besson., G. Guilbaud., H. Ollat. John Libbey, Paris, pp 23-37, 1994.

9. **Sengupta JN,** Gebhart GF. Mechanosensitive afferent fibers in the gastrointestinal and lower urinary tract. In: *Visceral Pain: Progress in Pain Management,* vol 4, edited by G.F.Gebhart. IASP Press, pp 75-98, 1995.

10. Gebhart GF, **Sengupta JN.** Evaluation of visceral pain. In: Methods in Gastrointestinal Pharmacology: A Handbook. Edited by T. Gaginella. CRC Press, Boca Raton, Florida. pp. 359-373 1995.

11. Gebhart GF, **Sengupta JN.** Effects of fedotozine on mechanosensitive pelvic nerve afferent fibers in the rat. In: Sensitive Gastrointestinal Disorders: Fedotozine contribution to drug therapy, edited by J.P. Galmiche and B. Fraitag, John Libbey Eurotext, Paris, 1995, pp 65-71.

12. SU X, **Sengupta JN**, Gebhart GF. Effects of kappa opioids on mechanosensitive pelvic nerve afferents innervating the colon and urinary bladder of the rat. *IASP Press*, 1997, pp795-803.

13. Gebhart GF, **Sengupta JN,** Su X. Opioids in visceral pain. In: Opioids in pain control – Basic and clinical aspects. Cambridge University Press, pp 325-334,1999.

14. Gebhart GF, Su X, Joshi S, Ozaki N, **Sengupta JN**. Opioid modulation of visceral pain. In: Opioid Sensitivity of Chronic Noncancer Pain edited by Kalso, E., McQuay, HJ., Wiesenfeld-Hallin, Z. IASP Press, 1999, pp225-235.

15. Gebhart GF, Su X, Joshi S, Ozaki N, **Sengupta JN**. "Peripheral Opioid Modulation of Visceral Pain", Annals of the New York Academy of Sciences, vol 909, pp 41-50, 2000.

16. **Sengupta JN**, Shaker R, Miranda A. Visceral Pain Model, Esophageal Pain. In Encyclopedic Reference of Pain, edited by Schmidt, R.F. Willis, W.D. Springer-Verlag, New York. 2006.

17. **Sengupta jn**, SHAKER R. Vagal Afferent Nerve Stimulated Reflexes in the GI Tract. In: Advances in Vagal Afferent Neurobiology edited by B.J. Undem and D. Weinreich. CRC Press, pp379-401, 2005.

18. **Sengupta JN.** Esophageal Sensory Physiology. In: GI Motility Online edited by Raj K. Goyal and Reza Shaker. Nature Publishing Group. 2006.

19. **Sengupta JN**. Visceral pain: the neurophysiological mechanism. Handbook of Experimental Pharmacology. 2009; 194: 31-74. Review. PubMed PMID: 19655104; PubMed Central PMCID: PMC3156094.

20. Kannampalli P, Shaker R, **Sengupta JN**. Colonic butyrate- algesic or analgesic? Neurogastroenterol Motil. 23: 975-979, 2011.

21. **Sengupta JN** and Banani Banerjee, Visceral Pain Model: Esophageal Pain. In: Encylopedia of Pain, Springer-Verlag, 2013.

22. Kannampalli P, **Sengupta JN**. Role of principal ionotropic and metabotropic receptors in visceral pain. J Neurogastroenterol Motil. 30; 147-58, 2015.

Editorials, Letters to Editor, Other:

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