

Dr. Bhavani Kashyap
Research Associate – MD, PhD
HEALTHPARTNERS NEUROSCIENCE CENTER
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Education:

- **PhD, Neuroscience, 2010**
University of Idaho; Moscow, ID
- **MBBS, Bachelor of Medicine and Bachelor of Surgery, 2005**
Bangalore Medical College, Bangalore; India

Research Experience:

Research Associate – MD, PhD; April 2017 - Present

HealthPartners Neuroscience Research; St. Paul, MN

Clinical Research in Neurological Disorders

- **Clinical Trials –Intranasal Therapeutics:** Study designs, development of protocols, FDA regulatory submissions for investigator initiated -Phase I, II studies, CDR clinical assessment for intranasal insulin and industry - sponsored clinical trials.
- **Retrospective Clinical Research (Co-Investigator):** Study design, development of protocols, IRB regulatory submission, data collection, analysis, and presentations at conferences, professional organizations and in the community on multiple projects with the Stroke Center, Department of Pain, Department of Orthopedics, and Center for Memory and Aging.
- **Clinical Research – Observational:** Currently lead (**Principal Investigator**) an observational study with persons with dementia and their caregiver looking at benefits of participation in a choral program on their mood, well-being and quality of life.
- **Mentor:** Currently guide interns (undergraduate and foreign medical graduate) in clinical research, specifically setting goals, sharing expertise regarding techniques employed and in the compilation and interpretation of results in the research.

Projects:

- A Single Center Feasibility Study of Intranasal Insulin in Frontotemporal Dementia NIFT-D (Nasal Insulin in Frontotemporal dementia).
- Intranasal Insulin Treatment of Parkinson's disease (IN-PD).
- Brain Iron Imaging in Parkinson's disease.
- Exploratory Phase 1 study for detection of Deferoxamine Mesylate in cerebrospinal fluid after intranasal administration in patients with hemorrhagic stroke (Explore DFO).
- Mindfulness based Dementia Care Program – Prospective observational study of benefits and evaluation of the program.
- Development of quality assurance for an in house GLP study to support FDA submission for Intranasal DFO in Stroke, and other neurological disorders.
- CREAD2: A Phase III, Multicenter, Randomized, Double-Blind, Placebo-Controlled, Parallel-Group, Efficacy and Safety Study of Crenezumab in Patients with Prodromal to Mild Alzheimer's disease.
- A Phase II, Multicenter, Randomized, Double-Blind, Placebo-Controlled, Parallel Group, Efficacy, and Safety Study of MTAU9937A in Patients with Prodromal to Mild Alzheimer's Disease.
- The IDEAS Trial in the Community Neurology Clinic: Characterization of a Population Sample.

Research Fellow; Feb 2015 - April 2017

HealthPartners Center for Memory and Aging; St. Paul, MN

Clinical Research in Neurological disorders

Projects:

- A Phase II, Single Center, Randomized, Double-Blind, Placebo-Controlled Study of the Safety and the Therapeutic Effectiveness of Intranasal Glutathione in Amnesic Mild Cognitive Impairment and Probable Mild Alzheimer's disease.

- A Double-Blind, Placebo-Controlled Pilot Investigation of the Safety of Intranasal Glutamine in Down Syndrome.
- Feasibility of Daily Aromatherapy for Sleep Treatment in Dementia.
- CHORD Study: The Power of Music through Participation in the Giving Voice Chorus.
- HealthPartners Initiative to Improve stroke care by developing and maintaining high Quality database (HI IQ).
- Stroke in Minorities.
- Impact of Emergency Medical Services on Acute Stroke Care at Regions Hospital.
- Barriers to Meeting Time Goals in Suspect Stroke Patients Receiving IV Thrombolysis.
- Performance of a new “Code Stroke” process in Hospitalized Patients in a Comprehensive Stroke Center in Minnesota.
- Impact of Pre-Operative Pain Consult on Outcomes and Satisfaction of Regions Hospital Spinal Fusion Surgery Patients.
- MyNeuroscienceCenter App – A web-based application in Neurosciences for providers and patient care.
- FDA Electronic Submission – A gateway for cost-effective submission of the applications for Neuroscience Research.
- Feasibility of the MiniCog as a Standardized Cognitive Screen in HealthPartners Patients Aged 70 and Older.

Contract Research Scientist; Feb 2010 - Aug 2010

Inspire Medical Systems, Maple Grove, MN

Implantable Medical Device Research- OSA treatment

- Evaluated, analyzed and summarized the clinical trial data for efficacy of a Class III implantable medical device, based on Medtronic Neuromodulation Itrel® IPG, in obstructive sleep apnea (OSA) management.
- Conducted literature research on data from pre-clinical studies of several medical devices in OSA management for improving device efficacy.
- Organized, prepared reports and presentations of the analyzed data for internal use and submissions to regulatory boards.
- Conducted literature research on sleep apnea to identify target patient population who would receive maximum benefits from the Inspire system.
- Successfully contributed towards the pivotal clinical trial approval by the FDA through literature search, data analysis and reports.
- Successfully contributed towards the FDA approval on the extension of shelf life of the leads of the device.

Research Associate (Volunteer); Nov 2009 - Jul 2010

Department of Ophthalmology, University of Minnesota, MN

Retina and Corneal Research

- Conducted literature survey and provided input regarding materials for transplantation of cells in human cornea to initiate clinical collaborative project with academic and medical investigators.
- Established molecular biology protocols like the In situ Hybridization protocol in the cornea lab.
- Provided input in establishing the Quantitative PCR technique for research in human cornea for wound repair.

Graduate Research Assistant; Aug 2004 - Oct 2009

Neuroscience Program, University of Idaho, ID

Research in Retina and Neuro-Developmental Disorders

- Authored research grant proposals and provided supporting information as part of a NIH grant proposal.
- Prepared and authored manuscripts of results in research in peer reviewed journals.
- Designed and conducted experiments to study effects of fetal alcohol syndrome on developing nervous system, evaluate mechanisms and pathogenesis in animal models and possible interventions.
- Involved in a team of biologists, physicists and chemists studying the safety and toxic effects of nano-materials in vivo to assess potential drug delivery applications.
- Conducted behavioral and statistical analysis of post drug (Dopamine and Ifenprodil) effects on Alzheimer’s disease in aging mice.
- Successfully completed a term project in neural networks using MATLAB as a part of Biological Signal

processing coursework.

- Mentored and supervised four undergraduates in setting goals for their research projects, designing experiments, sharing expertise regarding techniques employed and in the compilation and interpretation of results in the research lab.

Teaching Experience:

Teaching Assistant- Genetics for Biology Majors

Department of Biological Sciences; University of Idaho; Aug 2008 - Dec 2008

- Instructed and evaluated sophomore students in laboratory sessions on standard techniques employed in molecular biology, genetics and data mining tools.

Teaching Assistant- Central Nervous System for Medical Students

WWAMI program; University of Idaho; Jan 2006 - May 2006

- Instructed first year medical students in laboratory on Human Neuroanatomy and Neurophysiology.

Clinical Experience:

Clinical Observership

Family Medicine; HealthEast Care System; Woodbury, MN; Feb 2011 - Apr 2011

- Observed patients on a daily outpatient basis to understand clinical evaluation and management of everyday cases in family medicine.

Pediatrics; Palouse Pediatrics; Pullman, WA; Jan 2008 - May 2008

- Familiarized with the U.S. medical system in a private practice setting.
- Discussed findings with the attending physician and developed a differential diagnosis and treatment recommendations.

Resident Intern; Jun 2003 - Jun 2004

Victoria Hospital; Bangalore India

- Acquired clinical skills under supervision of reputed medical professionals in the department of neurology and evaluated neurological disorders including Movement disorders, Epilepsy and Stroke.
- Observed, managed and treated patients admitted to the Hospital, including interfacing with specialists to discuss treating options.
- Evaluated patients, handled outpatient clinics, managed patients in emergency and assisted in intra-operative surgical procedures.

Animal Laboratory Skills:

Molecular and Cellular Biology:

- Gene Expression: RT-PCR, PCR, DNA/RNA isolation, qRT-PCR, Microarray, In situ hybridization Terminal dUTP nick end labeling (TUNEL), Acridine orange staining, DNA and RNA isolation.
- Protein Expression: Immunocytochemistry, Western blot.
- In vitro transcription, gel electrophoresis, restriction enzyme digestions, bacterial culture for plasmid DNA, plasmid extraction.
- Bioinformatics tools- Primer designing, data mining tools including Ensemble, BLAST, cloning software like Geneious, Vector NTL.
- Cell culture- Aseptic techniques; explants and cell culture of mouse corneas.

Imaging and Histological:

- Microscopy: epifluorescence, confocal, IVIS
- Processing of eye (retina and cornea), and brain tissues.

Experimental physiology and pharmacology:

- Hands on experience in conducting experiments to understand basic neuromuscular physiology and in conducting experiments to understand basic principles of pharmacology.

Animal Models:

- Design and efficiently conduct experiments involving animal models.
- Experienced in behavioral tools and analysis memory in mice.
- Skilled in introduction of materials like the RNA, cholesterol, Nano-wires using microinjection for rescue/toxicity experiments in zebrafish embryos.
- Hands on experience in training, performing stereotaxic surgery, administering drugs through osmotic pumps in mice.

Publications:

- **Kashyap, B.**, Pegorsch, L., Frey, R. A., Sun, C., Shelden, E. A., & Stenkamp, D. L. (2014). Eye-specific gene expression following embryonic ethanol exposure in zebrafish: roles for heat shock factor 1. **Reproductive toxicology**, 43, 111-124.
- **Kashyap, B.**; Frey, R.A. & Stenkamp, D.L. Ethanol-Induced Microphthalmia is not Mediated by changes in Retinoic Acid or Sonic Hedgehog Signaling During Retinal Neurogenesis. **Alcoholism: Clinical and Experimental Research**, 2011, 35: no. doi: 10.1111/j.1530-0277.2011.01511.x.
- Vanderveken, O.M; Boudewyns, A; Ni, Q; **Kashyap, B**; Verbraecken, J; De Backer, W; Van de Heyning, C. “Cardiovascular Implications in the Treatment of Obstructive Sleep Apnea”. Review. **Journal of Cardiovascular Translational Research**, 2010, 1-8.
- **Kashyap, B.**; Frederickson, L.C. & Stenkamp, D.L. Mechanisms for persistent microphthalmia following ethanol exposure during retinal neurogenesis in zebrafish embryos. **Visual Neuroscience**, 2007, 24, 409-421.

In Prep Manuscripts:

- Starr, W. C., **Kashyap, B.**, Hanson, L.R., Novel Rehabilitation Protocol Improves Pain and Function in Alcoholic Neuropathy: A Case Report.
- Hanson, L.R., **Kashyap, B.**, Cagan, B.A., Rinheimer, K., Stuck, M.S., Flottemesch, T., Clairmont, J., Haus, E., Lavender Essential Oil Improved Sleep in Residents of a Memory Care Assisted Living Facility.
- Hanson, L.R., Barclay, M.P., Kenny, M., Schowalter, J., Kehrberg, T., Tucker, S., Somerville, B.I., Kreitzer, M.J., **Kashyap, B.**, Forsberg, A., Svitak, A., Ringham, K., Barclay, T., Mindfulness-based Program for Patients with Dementia and Caregivers: Pilot Study.
- Peterson, P. A., Forsberg, A., **Kashyap, B.**, Pawloski, P. A., Hanson, L.R., Unique case report of a meningeal sarcoma arising during ongoing treatment for progressing intraparenchymal glioma.
- Droegemueller, C. J., Wagner .R. L., **Kashyap, B.**, Hanson, L. R., Pearsall, V. M., Herrmann., A. A., Hussein, H.M., Performance of a new “Code Stroke” process for Hospitalized Patients in a Metropolitan Comprehensive Stroke Center.

Peer Reviewed Abstracts:

- Haitham Hussein, Carol Droegemueller, Steven Stanfield, Clarice Marsh, Ryan Bourdon, Zachary Stoecker, Aaron Burnett, Jodi Mueller-Hussein, Tiffany Robbe, **Bhavani Kashyap**, Lauren Erickson, Vesselina Pearsall, Leah Hanson. Barriers to Meeting Time Goals in Suspect Stroke Patients Receiving IV Thrombolysis (**P6. 004**). April 10, 2018; 90 (15 Supplement). **American Academy of Neurology 2018**.
- Haitham Hussein, Lauren Erickson, **Bhavani Kashyap**, Michelle Clayton, Mary Fennig, Vesselina Pearsall, Carol Droegemueller, Aaron Burnett, Leah Hanson. Correlation between evaluation and documentation of neurologic deficit by EMS and ED of patients with acute ischemic stroke (P2. 253). Neurology, Volume 90, 15 Supplement. **American Academy of Neurology 2018**.
- Carol J Droegemueller, Roberta L Wagner, **Bhavani Kashyap**, Mitchell W Clayton, Mary W Fennig, Leah R Hanson, Haitham M Hussein. Performance of a New “Code Stroke” Process in Hospitalized Patients in a Comprehensive Stroke Center in Minnesota. International Stroke Conference. Feb 2018. **Stroke. 2018;49:ATP370**
- Michael H. Rosenbloom, Terry R. Barclay, Andrew E. Dorwart, Lauren O. Erickson, Ann M. Werner, **Bhavani Kashyap**, Soo Borson, Leah R. Hanson. Cognitive Screening Results from the Medicare Annual Wellness Visit in a Primary Care Practice. **The Alzheimer's Association International Conference**. July 2017
- Leah R Hanson, Michelle Barclay, **Bhavani Kashyap**, Beth Somerville, Mary Jo Kreitzer, Logan Stuck, Terry R Barclay. Mindfulness for Early Alzheimer’s Disease: A Pilot Study. **The Alzheimer's Association**

International Conference. July 2017

- Haitham Hussein; **Bhavani Kashyap**; Lauren Erickson; Anna Forsberg; Aaron Burnett; Stephen Stanfield; Sandi Wewerka; Alexia Terwilliger; Leah Hanson. Analysis of Run Sheets of EMS Serving a Metropolitan Comprehensive Stroke Center. National Association of EMS Physicians Annual Meeting. Jan 2017
- Stenkamp D.L; **Kashyap B**; Sloan B. Ethanol-Induced Microphthalmia in the Zebrafish Embryo is not Mediated by the Retinoic Acid or Hedgehog Signaling Pathways. **Association for Research in Vision and Ophthalmology** May 2009.
- Stenkamp D.L; Stevens C.B; **Kashyap B**; Cameron D. New roles of retinoic acid in eye development. **Association for Research in Vision and Ophthalmology**, April 2008.
- Prabhudesai S.N, Cameron D, Singh S, **Kashyap B**, Stenkamp D.L. Localization of Retinoic Acid Signaling Components and Effects of Retinoic Acid on Photoreceptor Development. **Investigative Ophthalmology and Visual Science** 46 (5), 582, May 2005.

Presentations:

- **Kashyap B**, Stroebel, B M, Pearsall, V M, Erickson, L, Chord Study: The Power of Music through Participation in the Giving Voice Chorus. Poster Presentation. **Alzheimer's Association International Conference; Chicago; July 2018**
- **Kashyap B**, Carol Droegemueller, Lauren Erickson, Leah Hanson and Haitham Hussein. Poster Presentation Clinical Characteristics and Healthcare Utilization of Hmong Patients Presenting with Stroke. **Neurology April 18, 2017 vol. 88 no. 16 Supplement P3.075**
- **Kashyap.B**. Research Overview. **Invited talk at Department of Pediatrics, Bangalore Baptist Hospital, Bangalore, India.** December 2011.
- **Kashyap, B.** & Stenkamp, D.L. Understanding ethanol induced microphthalmia: A role for Retinoic acid? Poster presentation at **Gordon Conference on Visual System Development.** August 2008.
- **Kashyap, B.** & Stenkamp, D.L. Role of retinoic acid in ethanol induced microphthalmia in zebrafish. **Oral presentation at Society for Developmental Biology-** March 2008 NW Regional Meeting.
- **Kashyap, B.** & Stenkamp, D.L. Ethanol induced microphthalmia in zebrafish during retinal neurogenesis- a search for mechanisms. **Poster Presentation at annual meeting of Association for Research in Vision and Ophthalmology**, May 2007.
- **Kashyap, B.** & Stenkamp, D.L. Microphthalmia following embryonic ethanol exposure in Zebrafish: A search for mechanisms. **Poster presentation at 7th International meeting on Zebrafish development and genetics.** June 2006.
- **Kashyap, B.** & Stenkamp, D.L. Tanked Zebrafish embryos: ethanol induced microphthalmia. **Poster presentation at Society for Developmental Biology-** March 2007 NW Regional Meeting.
- **Kashyap, B.** & Stenkamp, D.L. Effects of Embryonic ethanol exposure on retinal development in Zebrafish. **Oral presentation at INBRE 4th Annual Research Conference**, August 2005.

Community Presentations:

- **Kashyap.B**, Dementia, Music and More. **Invited talk** at St Catherine University, **Feb 2018**
- **Kashyap.B**, Dementia, Music and More. **Invited talk** at Faith Community Nurse Network of the Greater Twin Cities, **Jan 2018**
- **Kashyap.B**, Sleep and Role it Plays in Dementia. **Invited talk** at New Perspective Senior Living, Roseville, Minnesota. **Oct 2017**
- **Kashyap.B**. Healthy Brain Aging and Alzheimer's Research. **Invited talk** at New Perspective Senior Living, Waconia, Minnesota. **Feb 2017**
- **Kashyap.B**. Understanding Memory-Related Research. **Invited talk** at Augastana Memory Club, Minneapolis, Minnesota. **October 2016**
- **Kashyap.B**. Sleep Issues and Dementia. **Ask the Expert Series Talk** at Augastana Care Facility, Apple Valley, Minnesota. **June 2016**
- **Kashyap.B**. Understanding Memory-Related Research. **Invited talk** at Augastana Memory Club, Minneapolis, Minnesota. **May 2016**
- **Kashyap.B**. Understanding Memory-Related Research. **Invited talk** at Park Nicollet Memory Club, Minneapolis, Minnesota. **April 2016**

- **Kashyap.B.** Healthy Brain Aging. **Invited talk at Keystone Communities, Minneapolis, Minnesota. June 2015**
- **Kashyap.B.** Healthy Brain Aging. **Invited talk at Augustana Memory Club, Minneapolis, Minnesota. March 2015**

Awards:

- Student Grant Program Grant Awardee: For proposal titled “Eye-specific gene expression following embryonic ethanol exposure”. April 2008-April 2009
- Gordon Research Conference Chair Fund Awardee: For presenting research at Gordon Research Conference in Visual Development. August 2008
- Student Grant Program Dissemination Grant Awardee: For presenting research at Regional SDB conference. March 2008
- Neuroscience Fellowship: From IDeA Networks of Biomedical Research excellence for graduate studies. August 2004- August 2005

Member:

- American Academy of Neurology
- American Academy of Sleep Medicine
- ISTAART Member - The Alzheimer's Association