

CURRICULUM VITAE

May 2018

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EDUCATION

<u>Year</u>	<u>Degree</u>	<u>Discipline</u>	<u>Institution</u>
1973	Senior Cambridge		Loreto Convent, India
1978	BS	Botany (Honors)	Lady Brabourne College, India
1983	M.S	Biological Chemistry	University of Pittsburgh, USA
1989	Ph.D	Biological Chemistry	University of Pittsburgh, USA

POSTDOCTORAL TRAINING

1989-1990	Albert Chung, Ph.D., Department of Biological Sciences, University of Pittsburgh, Pittsburgh, PA.
1990-1993	John R. Hassell, Ph. D., Department of Ophthalmology, University of Pittsburgh School of Medicine and Eye & Ear Institute, Pittsburgh, PA.
1994-1995	Terry Magnuson, Ph. D., Department of Genetics, Case Western Reserve University School of Medicine, Cleveland, OH.

ACADEMIC APPOINTMENTS

Dates	Position	Institution
1995-1996	Instructor of Genetics	Department of Genetics, Case Western Reserve University, Cleveland, OH
1996-2000	Assistant Professor of Medicine (Primary)	Department of Medicine, Case Western Reserve University, Cleveland, OH
2000	Assistant Professor of Genetics (Secondary)	Department of Genetics, Case Western Reserve University, Cleveland, OH
2000-2004	Assistant Professor of Medicine (Primary), Ophthalmology and Cell Biology (Secondary)	Departments of Medicine (Gastroenterology Division), Ophthalmology, Cell Biology, Johns Hopkins University School of Medicine (SOM), Baltimore, MD
2004-2012	Associate Professor of Medicine (Primary) Ophthalmology and Cell Biology (Secondary)	Departments of Medicine (Gastroenterology Division), Ophthalmology, Cell Biology, Johns Hopkins University School of Medicine (SOM), Baltimore, MD

2013-03/2018	Professor of Medicine (primary) Cell Biology and Ophthalmology (secondary)	Departments of Medicine (Gastroenterology Division), Ophthalmology, Cell Biology, Johns Hopkins University School of Medicine (SOM), Baltimore, MD
2018-present	Professor Professor and Director of Basic Research	Departments of Ophthalmology and Pathology, NYU Langone Health Department of Ophthalmology NYU Langone Health, NY, NY

Awards and Honors

2012 University of Rochester's Center for Visual Science Boynton Colloquium Lectureship

2013 Cole Eye Institute Distinguished Lectureship

Major Committee Assignments

Advisory Committees, Review groups/Study Sections

2000	Special Emphasis Study Section ZDK1GRB-7 NIDDK microarray Biotechnology Centers
2001	Wellcome Trust Funds grant review
2001-2003	NIH Vis A Study Section ad hoc member
2003-2006	NIH AED (Vis A) Study Section Permanent Member
2004	Eli and Edythe Broad Medical Research Program Grants
2005	GCRC site visit, UCLA and Cedars Sinai LA
9/2007	NIH AED (Vis A) Study Section. Ad hoc reviewer
6/2008	NIH AED (Vis A) Study Section. Ad hoc reviewer
10/2008	NIH AED (Vis A) Study Section. Ad hoc reviewer
6/ 2011	NIH ZRG1 BDCN-H Study Section. Ad hoc reviewer
6/2015	NIH, BVS Study Section. Ad hoc reviewer
2/2016	NIH, DPVS Study Section. Ad hoc reviewer
6/2018	NIH BDCN Study Section. Ad hoc reviewer

Memberships, Offices, And Committee Assignments In Professional Societies

Professional Society memberships

American Association for the Advancement of Science (AAAS)

Association for Research in Vision and Ophthalmology (ARVO)

American Gastroenterological Association (AGA)

The American Society for Matrix Biology (ASMB)

The American Society for Biochemistry and Molecular Biology (ASBMB)

The Tear Film and Ocular Surface Society (TFOS)

Conference Chair

2010 Gordon Research Conference on the Biology and Pathobiology of the Cornea
Inaugural Chair.

2011 Cornea Section Program Committee, Association for Research in Vision and Ophthalmology
(ARVO) Annual meeting

Organizing Committee member

2002 Gordon Research Conference on Proteoglycans

2008-2011 Association for Research in Vision and Ophthalmology (ARVO) Annual meeting Program

2012 -present Gordon Research Conference on the Biology and Pathobiology of the Cornea

Session/symposium Organizer

2000 Gordon Research Conference on Proteoglycans: Small leucine-rich proteoglycans
2002 Gordon Research Conference on Proteoglycans: Cell Biology of Proteoglycans
2005 ARVO: Proteome and Genome Session organizer
2006 Gordon Research Conference: Proteoglycans in Disease Models
2006 American Society of Matrix Biology (ASMB) Molecular mechanisms of matrix in inflammation-Special Interest Group
2008 ARVO: Extracellular matrix driven regulation of innate immune response and inflammation-Special Interest Group
2009 ARVO: Inflammation: Different diseases, common themes- Symposium,
2010 ARVO: Novel gene-targeted mutations affecting structure and functions of the cornea -Mini-symposium
2011 ARVO: Innate and adaptive Immunity in ocular defense and disease - Symposium
2011 ARVO: Genomics in Vision Research - Symposium
2011 ARVO: Cell fate decisions - Mini-symposium
2011 ARVO: Small leucine rich repeat proteoglycans of the cornea- Mini-symposium
2012 International Society for Eye Research, Annual Conference, Berlin.
2016 Gordon Research Conference, Cornea Biology and Pathobiology
2017 ARVO: Special interest group - TGF beta signaling in disease

Moderator/Discussion Leader

1999 Association for Research in Vision and Ophthalmology (ARVO): Mouse Genetics Session, Ft. Lauderdale
2001ARVO: Keratocyte and stromal functions Session, Ft. Lauderdale
2004ARVO: Cornea development and differentiation Session, Ft. Lauderdale
2005ARVO: Study of the Structure and Functions of the Cornea Using Mouse Models: Advantages and Challenges. Special Interest Group, Ft. Lauderdale
2005ARVO: Corneal Genome and Proteome Session
2005ARVO: Use of Transgenic Models to Study the Cornea and the Anterior Segment. Panelist
2008 ARVO: Stroma and Keratocytes Session, Ft. Lauderdale
2010ARVO: Cornea mini-symposium, Ft. Lauderdale
2010TFOS: Tear film and ocular surface society conference. Florence, Italy

Editorial Positions

2010 –2017, Editor, Experimental Eye Research (Cornea Section)
2017-Present, Editorial Board Member Matrix Biology
2009 –Present, Academic Editor, PLoS ONE
2008 -2014 Editorial Board, Journal of Biological Chemistry

Journal Peer Review Activities (2003-present)

Invest Ophthalmology and Visual Sciences
Molecular Vision
Human Molecular Genetics
Mammalian Genome
Inflammatory bowel diseases
American Journal of Physiology
Gastroenterology
Journal of Biological Chemistry
Journal of Experimental Medicine

New England Journal of Medicine
Genome Research

Major Administrative Responsibilities

2003-2004 Organization of the Gastroenterology Division Seminar Series, Johns Hopkins SOM
2003 - Present Cellular & Molecular Medicine Graduate Training Program Faculty, Johns Hopkins School of Medicine
2014-Present Pathobiology Graduate Program member, Johns Hopkins School of Medicine
2006 - Present Fellowship Program committee member, Gastroenterology Division Johns Hopkins SOM
2006 - Present Wilmer Keratoconus Research Team Director, Johns Hopkins SOM
<http://www.jhu.edu/schakravarti/kcn/team.html>
2009 - Present JHU Phenotyping Core Faculty
www.hopkinsmedicine.org/mcp/PHENOCORE/PhenocoreFaculty.html

Teaching Experience

Classroom instruction

10/2-11/01 Molecules and Cells III and IV. Department of Medicine, Johns Hopkins University SOM, Baltimore, MD
2001 Workshop on Statistical & Computational Genomics. Applications of Microarray. Indian Statistical Institute, Kolkata, India
2003 Molecules and Cells III and IV. Johns Hopkins University School of Medicine. Small group Discussant. Department of Medicine, Johns Hopkins University SOM, Baltimore, MD
2004-present CMM Core Discussion Faculty Moderator, Johns Hopkins University SOM, Baltimore, MD

CME Instruction

1999 Frontiers in Gastroenterology and Hepatology. Lecture Series. Chip into ulcerative colitis and Crohn's Disease: gene expression signatures of two different diseases. Case Western Reserve University, Cleveland, OH.
2008 Pathology Grand Rounds. Department of Pathology. Johns Hopkins SOM, Baltimore, MD.
2008 Pathology Grand Rounds. Department of Pathology. UMDNJ, Newark, NJ.

Mentoring of Graduate Students, Residents, Post-doctoral fellows in research

Pre-doctoral

2003 Ashwin Singh, BS. University of Maryland, Baltimore County, Baltimore, MD. Summer Undergraduate Research Meyerhoff Scholarship Program. Research elective funding from CCFA under Dr. Chakravarti's guidance. Role of Collagen VI in Crohn's disease.
2003 Megan Keefe, CMM Graduate Student rotation, Johns Hopkins University, Baltimore, MD
2005 Brittany Jackson, BS Washington University, St. Louis. Undergraduate Summer Internship. NIH under-represented minority grant award (mentor: Dr. Chakravarti)
2006 Jeffrey Doyle, MBBS. CMM Graduate student rotation. Graduate Student, SOM Genetics Smilow Ctr Marfan Synd Rsch Johns Hopkins School of Medicine

- 2007 Kyle Bowrin, BS. South Carolina State University. Johns Hopkins Summer Internship Program for undergraduate students. The role of lumican in neutrophil migration. Co-author on a 2009 JBC paper.
- 2010 Hardik Sardana, MBBS. AIIMS, India. Johns Hopkins SOM Gastroenterology Research elective on inflammatory bowel disease. Co-author on 2011 Inflammatory Bowel Diseases paper.
- 2010-2011 Sangeeta Ramani, Medical Tutorial Program, Johns Hopkins Undergraduate Homewood Campus. Course - Extracellular matrix-cell signaling.
- 2011-2012 Anthony Sin, Medical Tutorial Program Johns Hopkins Undergraduate Hopkins Undergraduate, Homewood Campus. Course - Extracellular matrix-cell signaling.
- 2011 Richard Braum, Medical Tutorial Program, Johns Hopkins Undergraduate Homewood Campus. Course - Extracellular matrix-cell signaling.
- 2013-2014 Sudarshan Pinglay, Medical Tutorial Program, Johns Hopkins Undergraduate Homewood Campus. Keratoconus exome sequence studies.
- Aaron Hsu, Medical Tutorial Program, Johns Hopkins Undergraduate Homewood Campus. Recombinant lumican proteins and study of functional domains.
- Isha Kachwalla, Medical Tutorial Program, Johns Hopkins Undergraduate Homewood Campus. Recombinant lumican proteins and study of functional domains.
- Joey Bahng, Medical Tutorial Program, Johns Hopkins Undergraduate Homewood Campus. Recombinant lumican proteins and study of functional domains.
- 2014- Mehak Bassi, MBBS. AIIMS, India. Johns Hopkins SOM. Extracellular Matrix Research Internship.
- 2016 Ye Eun Jeong, BS Rotation Graduate student. Lumican and T cell interactions.

Ph.D. Oral Examination and Thesis Committee

- 2004 Betty Doan Ph. D. Oral examination committee member. JHU School of Public Health
- 2012 Nina Hosmane, Ph. D. Candidate. CMM Oral examination committee member.
Victoria Baxter, Ph. D. Candidate. CMM Oral examination committee member.
Agnieszka Anna Rucki, Ph. D. Candidate. CMM Oral examination committee member.
- 2014 Chinda Hemmavanh, Ph.D. Candidate. Thesis Committee Chair, Univ. South Florida
- 2016 Ryan Porell, Ph.D Candidate, Thesis Proposal Committee member, Johns Hopkins University, Advisor: Ronald Schnaar, Ph.D

Postdoctoral Fellowship trainees

- 1998-2000 Ian C. Lawrance, MD., Ph.D – Ulcerative Colitis and Crohn’s disease studies. Present position: Professor, University of Western Australia, Freemantle, Australia.
- 2000-2005 Feng Wu, M.D., Ph.D -Research on Pathogenesis of Ulcerative colitis and Crohn's Disease. Present position: Research Faculty, Gastroenterology Division, University of Chicago School of Medicine, Chicago, IL
- 2002-2004 Neeraj Vij, Ph.D. Lumican mediated cell signaling in the cornea. Present position: Associate Professor of Molecular & Cell Biology , College of Medicine , Central Michigan University.
- 2004-2009 Albert S. Jun, M.D., Ph.D. KO8 award recipient: Role of Collagen type VIII in the mouse cornea. Present position: Professor, Wilmer Eye Institute, Johns Hopkins SOM, Baltimore MD

- 2006-2007 Mukesh Gandhari, Ph.D. Role of lumican in innate immune functions. Present position: Postdoctoral Fellow, NIH, Bethesda, MD
- 2007-2008 Jamie. L. Wolfe, M.D. Clinical Pediatric Gastroenterology fellow, Johns Hopkins Children's Center. Baltimore, MD. Present position: Gastroenterologist, Children's National Specialists of Virginia, LLC, Fairfax, Virginia.
- 2007-2009 Amit Ghosh, Ph. D. Peptidoglycan recognition proteins in the cornea. Present position: Postdoctoral fellow, Oregon Health Science Center,
- 2009-2010 Xiaojun Feng, Ph.D. Pathophysiology of keratoconus, Department of Medicine Johns Hopkins SOM, Baltimore, MD. Present position: Group Manager, Invitrogen, China.
- 2007-2010 Seakwoo Lee, Ph.D. Postdoctoral Fellow. Regulation of inflammation by extracellular matrix lumican. Present position: Research Fellow, JHU Pediatrics-pulmonary.
- 2010-2012 Hanjuan Shao, Ph.D. Research Associate. ECM regulation of cellular functions. Present position: Research Associate, Department of Ophthalmology, University of Pennsylvania.PA.
- 2010-2012 Sherri Gae Scott, Ph. D (Johns Hopkins CMM). Keratoconus research. Present position: Grants Administrator, FASEB.
- Ranjita Harji- Gowda, Ph. D. Postdoctoral Fellow. Biochemical study of innate immune regulation by lumican.
- 2012 -2013 Zhaoxia Li, Ph.D. Postdoctoral Fellow. Regulation of inflammatory infiltrates by lumican.
- 2013- 2017 James W Foster, Ph.D. Genetic and Functional studies of Keratoconus. Present Position - Research Associate, Wilmer Eye Institute, Johns Hopkins Medical Institutions.
- 2014-2017 Jihane Frikeche, Ph.D. Role of ECM proteoglycans in innate and adaptive immunity. Present Position – Senior Scientist, TxCell, France.
- 2015- present George Maiti, Ph.D. Role of small leucine rich repeat proteoglycans in macrophage, TLR4 and TLR9 functions.
- 2016 - present Vishal Shinde, Ph.D. Functional studies of Keratoconus.

Major Research Interests

One major research focus in our laboratory is on understanding the role of extracellular matrix (ECM) proteins in homeostasis and disease. We are investigating the role of ECM proteoglycans, lumican, biglycan and fibromodulin in regulating connective tissue structures and host response to infections and inflammation. A second area focuses on keratoconus, an ECM connective tissue thinning, and multifactorial genetic disease of the cornea. We are attempting to identify underlying genetic variants and pathogenic processes in keratoconus using genomic, transcriptomic and functional studies.

Grants received

Current

- 1/1/2014-12/31/2018 Role of lumican in the cornea
NIH/NEI
PI: Chakravarti, S
Goals: To investigate innate immune functions of lumican in the eye.
- 6/10/2016-5/31/2019 TGF- β and AKT signaling in keratoconus pathogenesis
1R01EY024273-01, NIH/NEI
PI: Chakravarti, S
Goals: To investigate pathogenesis of keratoconus using genomic and functional cell culture studies

Previous

- 1995 Genetic studies of lumican. Pilot and Feasibility grant.

- Skin Diseases Research Center. Case Western Reserve University
 PI: Chakravarti, Shukti; Goals: to characterize lumican and seek extramural funding.
- 1995-1997 Genetic analysis of lumican's role in the cardiovascular system.
 Grant-in-aid
 American Heart Association
 PI: Chakravarti, Shukti
 Goals: to develop gene-targeted lumican-null mice and investigate the effects of the null mutation on heart development.
- 1995-1997 Basement membrane proteoglycan perlecan.
 NIH/NEI
 PI; Hassell, John
 Subcontract PI: Chakravarti, Shukti
 Goals: to develop perlecan over expressing transgenic mice.
- 1/1/97-12/31/17 Role of lumican in the cornea.
 RO1EY11654
 NIH/NEI
 PI: Chakravarti, Shukti
 Goals: to determine the role of lumican in collagen fibrillogenesis and elucidate the effects of lumican-deficiency on the structure and development of the cornea.
- 1/1/97-12/31/01 Core Facility for the Visual Sciences.
 NIH P30EY11373
 NIH/NEI
 PI: Lass, Jonathan, Case Western Reserve University
 Co-investigator: Chakravarti, Shukti (1/1/97-7/31/00)
- 4/1/99-3/31/01 Molecular studies of corneal transparency
 NIH 611-340-LO-A
 NIH.NEI
 PI: Hassell, John, Univ. South Florida
 Subcontract PI: Chakravarti, Shukti
 Goals: To develop keratocan targeting construct and null mice.
- 7/1/00-6/31/03 Pediatric IBD: key to early pathogenic events
 1PO1DK57756-01
 NIH/NIDDK
 PI: Fiocchi, Claudio, Case Western Reserve University, Cleveland
 Project #4: Title: Extracellular matrix in pediatric IBD.
 PI: Chakravarti, Shukti
 Goals: to identify ECM changes associated with colitis.
- 1/01/00-1/31/03 The role of extracellular matrix in inflammatory bowel disease: novel experimental models for intestinal inflammation and fibrosis.
 CCFA
 PI: Chakravarti, Shukti
 Goals: To elucidate ECM changes in mouse models of colitis.
- 9/30/00-9/29/03 Hopkins DK Center for the Analysis of Gene Expression.
 R24 DK58757-01

- NIH/NIDDK.
 PI: Vincent Yang, Greg Germino
 Co-investigator: Chakravarti, Shukti
- 7/01/03-10/31/04 Molecular classification of Crohn's disease subtypes by gene expression profiling.
 BMRP0051
 Broad Medical Research Program.
 PI: Chakravarti, Shukti; Goals: To investigate gene expression differences in Crohn's disease and ulcerative colitis in endoscopic pinch biopsies.
- 07/1/06-12/31/10 Role of lumican in colitis
 Senior Research Award 1599
 CCFA (Crohn's and Colitis Foundation of America)
 PI: Chakravarti, Shukti
 Goals: to investigate lumican functions in colitis.
- 7/1/07-6/30/08 Role of lumican in the cornea
 R56 EY11654.
 NIH/NEI
 PI: Chakravarti, Shukti
 Goals: To define the role of lumican in the cornea using the lumican-null mouse as a model system.
- 09/01/10 – 08/31/11 Fas pathway in organ-specific tolerance and autoimmunity
 1R56AI083444 - 01A2
 NIH
 PI: Hamad, A
 Co-investigator: Shukti Chakravarti
 Goals: to analyze mechanisms by which inhibition of the Fas pathway prevents type 1 diabetes in the NOD mouse model.
- 08/01/09 - 07/31/12 ARRA supplement to EY11654
 PI: Chakravarti, Shukti
 Goals: to investigate functions of lumican in neutrophils migration.
- 07/31/08-12/31/13 The role of lumican in the cornea
 2R01EY011654-12A1
 NIH/NEI
 PI: Chakravarti, Shukti
 Goals: to investigate the role of lumican in the cornea.
- 04/1/11-3/31/14 Functions of mammalian PGLYRPs in the cornea
 1R21EY021585
 NIH/NEI
 PI: Chakravarti, Shukti
 Goals: to elucidate functions of four antibacterial proteins in the cornea using gene-targeted mice deficient in these proteins.
- 04/24/2014-04/23/2016
 No cost extension-2018 Proteomic analyses of keratoconus patients from the Kingdom of Saudi Arab
 KKESH/Wilmer
 PI: Chakravarti, S

Goals: To study keratoconus patients from the Kingdom of Saudi Arabia.

04/22/2015-02/28/2017
No cost extension-2018

Transcriptome Analyses of Keratoconus Patients from the Kingdom of Saudi Arabia.

KKESHJHU/04-01

PI: Chakravarti, S

Goals: To perform RNA Seq from total RNA isolated from surgical corneal specimens from keratoconus patients from Saudi Arabia.

Educational Extramural Funding

2008-Present Hopkins Digestive Disease Basic Research Development Center

PI: Donowitz, M

Co-investigator: Chakravarti, S

2000-2002 Hopkins DK Center for the Analysis of Gene Expression

R24 DK58757-01

PI: Germino, G

Co-Investigator: Chakravarti, S (2000-2001)

Co-PI: Chakravarti, S (2002)

03/07/10 -03/12/10

Gordon Research Conference: Biology and Pathobiology of The Cornea

1R13EY 020033

NIH/NEI

PI: Chakravarti, Shukti

Goal: to subsidize attendance of trainees at the conference

Patents

Gene expression patterns in Crohn's disease and ulcerative colitis- Case Western Reserve University.

License purchased by Prometheus.

Invited Seminars and Lectures

2000

Department of Genetics and Center for Human Genetics. Case Western Reserve University. April 17, 2000.

Crohn's Disease and ulcerative colitis: DNA microarrays spell out two distinct disease signatures.

PCTB Seminar series. Johns Hopkins SOM, Baltimore, Feb 4, 2000. Extracellular matrix in health and disease.

XIV International Congress for Eye Research, Santa Fe, NM. Corneal endothelium and stroma of gene-targeted lum^{-/-} mice.

2001

M. D. - Ph. D. Retreat Symposium, the Johns Hopkins SOM. Airlee Conference Center, Airlee, Virginia.

"Chip" into ulcerative colitis and Crohn's Disease: distinctive gene expression profiles.

Gastroenterology Division, the Johns Hopkins SOM. January 30, 2001. Chip into ulcerative colitis and Crohn's Disease: gene expression signatures of two different diseases.

ARVO, Ft. Lauderdale. Regulation of cell proliferation and migration by lumican.

The 7th. Corneal Conference, Cardiff University, Cardiff, UK. Stromal structure and lumican.

2002

Prometheus Laboratories, San Diego CA. Chip into ulcerative colitis and Crohn's disease: gene expression profiles of two different diseases.

Mini-symposium, ARVO, Ft. Lauderdale. Role of lumican in ECM-cell signaling.

2003

Department of Biological Chemistry, Johns Hopkins University School of Medicine. Gene expression profiles of three distinctive cellular phenotypes: corneal keratocytes, fibroblasts and myofibroblasts.

National Eye Institute/NIH. Genes expressed differently in the cornea, corneal keratocytes and fibroblasts.

Schepens Eye Research Institute. Harvard Medical School. 23rd Biennial Cornea Research Conference. Gene expression patterns of corneal keratocytes, fibroblasts and myofibroblasts in culture: distinctive biological pathways and potential phenotype markers.

Keratocyte Club, ARVO, Ft. Lauderdale. Molecular characterization of murine corneal keratocytes, fibroblasts and myofibroblasts by microarray gene expression profiling.

Pathobiology of Proteoglycans, Parma, Italy. ECM lumican mediated cell signaling regulates proliferation and apoptosis.

2004

ARVO, Ft. Lauderdale. Lumican-deficiency leads to elevated cyclins and increased proliferation in cultured cells and corneal stroma.

Digestive Disease Week, American Gastroenterological Association. Extracellular Matrix Proteoglycan Lumican Plays a Critical Role in Intestinal Inflammation.

International Congress for Eye Research, Sydney, Australia. Macrophage-like functions of stromal keratocytes in the cornea.

2005

Department of Cell Biology Seminary Series, Johns Hopkins University. Meet lumican...an extracellular matrix proteoglycan that regulates innate immune response.

BMRP Investigator meeting. Broad Foundation Conference, Los Angeles. Global gene expression patterns of Crohn's disease and ulcerative colitis from endoscopic pinch biopsy: insight into disease pathogenesis.

V World Cornea Congress. Washington, DC. Plenary Session. Stromal proteoglycans: key regulators of corneal transparency and inflammation.

Panelist, ARVO, Ft. Lauderdale. Special interest group: Study of the Structure and Functions of the Cornea Using Mouse Models: Advantages and Challenges.

Panelist, ARVO, Ft. Lauderdale. Use of Transgenic Models to Study the Cornea and the Anterior Segment.

ARVO, Ft. Lauderdale Lumican regulates wound healing and innate immune response in the cornea.

NCBS, Bangalore, India. Invited Speaker. Global gene expression patterns of Crohn's disease and ulcerative colitis.

2006

Department of Biological Chemistry, Johns Hopkins SOM. The ECM in the modulation of innate immune response.

GI Division Seminar Series, Johns Hopkins University. Regulation of innate immune response and colitis by Lumican.

Gordon Research Conference on Proteoglycans, Andover, NH. Lumican regulates CD14-TLR4-mediated innate immune response to bacterial LPS.

American Society for Matrix Biology. Nashville, NC. Modulation of Growth Factor Signaling Pathways by Lumican in Corneal Wound Repair.

2007

Digestive Disease Week. Extracellular matrix proteoglycan lumican regulates innate immune response via the CD14-TLR4 pathway.

Special Lecture, Asia-ARVO, Singapore. Functions of LRR proteoglycans in the cornea.

ARVO, Ft. Lauderdale. An ECM protein lumican regulates innate immune response to bacterial LPS through the TLR4 pathway.

2008

F.A.R.M., Wilmer seminar Series. The cornea: what happens to it when you take away its proteoglycans?
Johns Hopkins SOM. Pathology Grand Rounds. Inflammatory bowel diseases and mouse models.
Autoimmunity Day, Dr. Noel Rose. Johns Hopkins SOM. LRR proteoglycans and their role in immune response.

ARVO, Ft. Lauderdale. Mini-symposium Speaker. Regulation of collagen architecture and cellular behavior by lumican.

UMDNJ, Department of Pathology. Regulation of innate immune response by the extracellular matrix.
LV Prasad Eye Institute, India. Corneal diseases: help from mouse models.

ARVO Summer Eye Research Conference, Monterey CA. Ocular autoimmunity and inflammation.
Modulation of innate immune response by ECM lumican.

2009

Gastroenterology Division Johns Hopkins SOM Research Seminar. Gene expression profiles to IBD biomarkers.

Center for Marine Biotechnology, University of Maryland Biotechnology Institute. Study of corneal health and disease through mouse models.

Schepens Eye Research Institute, Harvard Medical School, Boston. 26th Biennial Cornea Research Conference.

2010

Gordon Research Conference Biology and Pathobiology of the Cornea, Ventura, CA, Chair's Introduction and overview of research in the anterior eye.

ARVO, Ft. Lauderdale. Cornea Mini-symposium. An antimicrobial protein in the corneal epithelium.

ARVO, Ft. Lauderdale. Keratoconus Session. Proteomic Profiling of corneal stroma in keratoconus patients.

2011

ARVO, Ft. Lauderdale. Minisymposium. Versatile functions of the small leucine-rich repeat proteoglycans.

Phagocytes Gordon Research Conference, Davidson College, North Carolina.

Centre de Biophysique Moléculaire UPR 4301 CNRS, Orléans, France. The Leucine-rich repeat proteoglycans in health and disease.

Laboratoire de Biochimie Médicale, Faculté de Médecine, Reims, France. The Leucine-rich repeat proteoglycans in health and disease.

2012

Cornea, Biology and Pathobiology, Gordon Research Conference, Ventura, CA

F.A.R.M., Wilmer seminar Series. Keratoconus – proteomics and cell biology.

Invited Speaker, International Congress for Eye Research, Berlin, Germany. Ocular immunology and inflammation section.

University of Rochester's Center for Visual Science Boynton Colloquium Series, Rochester, NY. Keratoconus pathobiology.

2013

Johns Hopkins ICMIC Seminar Series. ECM functions in Innate Immunity.

FEBS Advanced Lecture Course. Matrix Pathobiology, signaling and Molecular targets. Kos Greece. "Immune functions of lumican."

Cole Eye Institute Distinguished Lecture Series. Cleveland, OH. "Leukocytes take directives from the extracellular matrix in ocular infections and inflammation."

2014

University of South Florida. Tampa, FL. Role of lumican in ocular inflammation and innate immunity.

Dean A. McGee Eye Institute. Oklahoma City. Extracellular matrix in ocular health and inflammation.

Stockholm. Journal of Internal Medicine Symposium Atherosclerotic plaque inflammation repair.

Extracellular Matrix and tissue repair responses.

2015

University of Houston College of Optometry, Houston, Tx. Periopsia Lecture Series. Lumican in ocular health, inflammation and immune responses.

Johns Hopkins Immunology Seminar Series. Matrix-laden path to immune regulation.

2016

International Society for Eye Research. Japan. Keratoconus: genes and pathways.

University of Michigan, Ann Arbor. Extracellular matrix proteoglycans.

Capital Institute of Pediatrics, Beijing, China. Genetics and pathogenesis of Keratoconus.

2017

ARVO. Special interest Group on TGF beta signals and ocular health and disease.

2018

Cornea Gordon Research Conference

Mini-symposium at ARVO

Genotypic and Phenotypic Studies of Keratoconus CME at NYU

Peer- reviewed publications

1. Friedrich CA, **Chakravarti S**, Ferrell RE. A general method for visualizing enzymes releasing adenosine or adenosine-5'-monophosphate. *Biochemical Genetics*. 1984; 22:389-394. PubMed PMID: 6466287.
2. **Chakravarti S**, Hamilton B, Sussman R. Relationship between cellular RecA protein concentration and untargeted mutagenesis in *Escherichia coli*. *Mutation Research*. 1986; 160:179-193. PubMed PMID: 2938000.
3. Durkin ME, **Chakravarti S**, Bartos B, Liu S-H, Friedman RL, Chung AE. Amino acid sequence and domain structure of entactin. Homology with epidermal growth factor precursor and low density lipoprotein receptor. *J Cell Biol*. 1988; 107:2749-2758. PubMed PMID: 3264556; PubMed Central PMCID: PMC2115676.
4. Tsao T, Hsieh J-c, Durkin M, Wu C, **Chakravarti S**, Dong L-J, Lewis M, Chung AE, Characterization of the basement membrane glycoprotein entactin synthesized in the baculovirus expression system. *J. Biol. Chem*. 1990; 265: 5188-5191. PubMed PMID: 2180961.
5. **Chakravarti S**, Tam MF, Chung AE. The basement membrane glycoprotein entactin promotes cell attachment and binds calcium ions. *J Biol Chem*. 1990; 265:10597-10603. PubMed PMID: 2191952.
6. **Chakravarti S**, Phillips S, Hassell JR. Assignment of the perlecan (heparan sulfate proteoglycan) gene to mouse chromosome 4. *Mammalian Genome*. 1991; 1: 270-272. PubMed PMID: 1686572.
7. **Chakravarti S**, Hassell JR, Phillips SL. Perlecan gene expression precedes laminin gene expression during differentiation of F9 embryonal carcinoma cells. *Develop Dynamics*. 1993; 197:107-114. PubMed PMID: 8219353.
8. **Chakravarti S**, Horchar T, Jefferson B, Laurie G, Hassell JR. Recombinant Domain III of Perlecan Promotes Cell Attachment through Its RGDS Sequence. *J Biol Chem*. 1995; 270: 404-409. PubMed PMID: 7814401.
9. SunderRaj N, Fite D, Ledbetter S, **Chakravarti S**, and Hassell JR. Perlecan is a component of cartilage matrix and promotes chondrocyte attachment. *J Cell Science*. 1995;108: 2663-2672. PubMed PMID: 7593307.

10. **Chakravarti S**, Stalling R, SunderRaj N, Cornuet PK, Hassell JR. Primary Structure of Human Lumican (Keratan Sulfate Proteoglycan) and Localization of the Gene (LUM) to Chromosome 12q21.3-q22. *Genomics*. 1995; 27:481-488. PubMed PMID: 7558030.
11. **Chakravarti S**, Magnuson T. Localization of mouse lumican (keratan sulfate proteoglycan) to distal chromosome 10. *Mammalian Genome*. 1995; 6:367-368. PubMed PMID: 7626890.
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