

# Curriculum Vitae

## Dr. Lawrence Rajendran

### Angaben zur Person

Adresse: Pfothenhauerstr. 108, 01307 Dresden  
Email: rajendra@mpi-cbg.de  
Geburtsdatum/Geburtsort: 08.02.1975 in Chennai, Indien  
Nationalität: indisch  
Familienstand: ledig

### Schulbildung

1980-1985 Grundschule: *St. Francis Xavier Primary School, Chennai, Indien*  
1985-1990 Mittelschule: *Government Higher Secondary School, Chennai, Indien*  
1990-1992 Oberstufe: *Jaigopal Garodia National Higher Secondary School, Chennai, Indien*

### Sprachen

Englisch, Tamilisch: fließend in Wort und Schrift  
Deutsch, Hindi: gut in Wort und Schrift

### Ehrenamtliche Tätigkeiten

1993-1995 Pfleger in einem Altersheim in Kanchipuram, Indien

# Universitärer und Wissenschaftlicher Werdegang

## Universitärer Werdegang

- 1992                    Immatrikulation am *Sri Sankara College of Arts and Science, Kanchipuram, Universität Madras, Indien*
- 1995                    Abschluss: Bachelor of Science, Biochemie (Biochemie, Chemie, Physik) (*Jahrgangsbester im Bachelorstudium, Biochemie, des Jahres 1995 an der Universität Madras*)
- 1995                    Masterstudium an der Universität Madras, Madras, Indien
- 1997                    Abschluss: Master of Science, Molekularbiologie (Zellbiologie, Immunologie, Biotechnologie) (*Jahrgangsbester im Masterstudium, Molekularbiologie, des Jahres 1997 an der Universität Madras*)
- 1997-1999            Pre-PhD Kurs (Biochemie, Biophysik, Bioinformatik) am *Indian Institute of Science, Bangalore, Indien*

## Wissenschaftlicher Werdegang

- 2000-2001            Wissenschaftliche Arbeit am Weizmann Institut der Wissenschaften, Rehovot, Israel im Labor von Prof. David Wallach, Fachbereich Biologische Chemie  
Thema: *Proteosomale Regulation der TNF induzierten Apoptose*
- 2001-2003            Promotion an der Universität Konstanz, Deutschland (*magna cum laude*)  
Doktorvater: Prof. Rolf Knippers  
Thema: *Die Rolle von Membranmikrodomänen bei der Signaltransduktion, Transport und Migration von Leukozyten*
- seit 2003             Post-Doctorate am Max-Planck Institut für Molekulare Zellbiologie und Genetik in Dresden bei Prof. Dr. Kai Simons  
Forschungsschwerpunkte: *Membranbiologische und zelluläre Grundlagen der Alzheimer Erkrankung*
- seit 2004             Wissenschaftlicher Berater im Bereich Alzheimer & Raft Clustering für Jado Technologies GmbH, Dresden

## Wissenschaftliche Preise & Stipendien

- 2000 Stipendium der Feinberg Graduate School am Weizmann Institut für Wissenschaften, Rehovot, Israel (*Biochemische Basis für TNF-induzierte Apoptose*)
- 2003 EMBO Kurzzeitstipendium (*Lipid-raft abhängige Endozytose*, nicht angetreten)
- 2003 - heute Post - Doktoranden - Stipendium der Max-Planck Gesellschaft (*Lipid Rafts und Zellpolarität*)
- 2005 Boehringer Ingelheim-APOPIS Preis (*bester Vortrag über Lipid Rafts und Alzheimer Krankheit, 7th AD/PD conference, Sorrento, Italien*)
- 2007 Alzheimer Forschung Initiative (AFI) 2007 als Principal Investigator.
- 2003 FORMAT- (ForMaT – Forschung fuer den Markt im Team) – BMBF initiativ Erste Phase grant – als Principal Investigator
- 2008 ISOA - Outstanding Young Investigator Award, Washington DC

## Ausgewählte Publikationen

### Original research publications

1. Lawrence Rajendran, Anja Schneider, Georg Schlechtingen, Sebastian Weidlich, Jonas Ries, Tobias Braxmeier, Petra Schwille, Jörg Schulz, Cornelia Schroeder, Mikael Simons, Gary Jennings, Hans-Joachim Knoelker, Kai Simons  
Efficient inhibition of the Alzheimer's disease  $\beta$ -secretase by membrane targeting  
**Science**. Apr 25; 320(5875): 520-3 (2008) (*highlighted in Nature, Nature Reviews Neuroscience, Faculty of 1000*)
2. Katarina Trajkovic, Chieh Hsu, Salvatore Chiantia, Lawrence Rajendran, Dirk Wenzel, Petra Schwille, Britta Brügger and Mikael Simons  
A role for ceramide in exosome formation within multivesicular endosomes  
**Science**. Feb 29;319(5867):1244-7 (2008)
3. Anja Schneider\*, Lawrence Rajendran\*, Masanori Honsho, Gerald Donnert, Stefan W. Hell, Mikael Simons  
Flotillin-dependent clustering of the amyloid precursor protein regulates its endocytosis and amyloidogenic processing in neurons.  
**J Neurosci.**, 28 (11), 2874-2882 (2007) (\* **equal contribution**)
4. Angelika Kippert, Katarina Trajkovic, Lawrence Rajendran, Jonas Ries, and Mikael Simons  
Rho regulates membrane transport in the endocytic pathway to control plasma membrane specialization in oligodendroglial cells.  
**J Neurosci.**, 27, 3560-70. (2007)

5. Lawrence Rajendran\*, Marlen Knobloch\*, Kathrin D. Geiger, Stephanie Dienel, Roger Nitsch, Kai Simons, Uwe Konietzko  
Increased Abeta production leads to Intracellular Accumulation of Abeta in Flotillin-1-Positive Endosomes.  
**Neurodegenerative Diseases.** 4(2-3):164-70 (2007)
6. Lawrence Rajendran¶, Le Lay S, Illges H  
Raft association and lipid droplet targeting of flotillins are independent of caveolin.  
**Biol Chem** 388, 307-14 . (2007) (¶corresponding author)
7. Lawrence Rajendran, Honsho M, Zahn TR, Keller P, Geiger KD, Verkade P, Simons K.  
Alzheimer's disease beta-amyloid peptides are released in association with exosomes.  
**Proc Natl Acad Sci U S A**, 103, 11172-7. (2006)
8. Lawrence Rajendran, Madhan Masilamani, Samuel Solomon, Ritva Tikkanen, Claudia A.O. Stuermer, Helmut Plattner and Harald Illges  
Asymmetric localization of Flotillins in preassembled platforms confer inherent polarity to hematopoietic cells.  
**Proc Natl Acad Sci U S A**, 100, 8241-6. (2003) *Times Cited: 47*
9. Soeren Deininger, Lawrence Rajendran, Friedrich Lottspeich, Michael Przybylski, Harald Illges, Claudia A.O. Stuermer, and Alexander Reuter  
Identification of teleost Thy-1, association with non-caveolar lipid rafts defined by Reggie proteins and its localization to axon regenerating retinal ganglion cells.  
**Mol Cell Neurosci.**, (2003) 22, 544-54.
10. Samuel Solomon, Madhan Masilamani, Lawrence Rajendran, Martin Bastmeyer, Claudia A.O. Stuermer, Harald Illges .  
The lipid raft microdomain-associated protein reggie-1/flotillin-2 is expressed in human B cells and localized at the plasma membrane and centrosome in PBMC.  
*Immunobiology*, 205, 108-19. (2002)
11. Reddy GB, Purnapatre K, Lawrence Rajendran, Roy S, Varshney U, Surolia A.  
Linear free-energy model description of the conformational stability of uracil-DNA glycosylase inhibitor – A thermodynamic characterization of interaction with denaturant and cold denaturation. **Eur J Biochem.** May;261(3):610-7. (1999)

### Manuscripts submitted or in preparation

12. Lawrence Rajendran, Vineeth Surendranath, Jitin Bali, Jonas Ries, Anja Schneider, Kathrin Geiger, Patrick Keller, Tobias Hartmann, Robert Umek, Petra Schwillie, Ebehard Krausz, Frank Buchholz, Bianca Habermann, Marino Zerial, Kai Simons and Mikael Simons (2008)  
A functional genomic approach integrated with network modeling identifies regulators of  $\beta$ -amyloid production in Alzheimer's Disease  
(to be submitted to **Nature Neuroscience**) (corresponding author)
13. Sebastian Weidlich, Lawrence Rajendran, Georg Schlechtingen, Cornelia Schroeder, Kai Simons and Hans-Joachim Knolker (2008)

Chemical synthesis of membrane anchored inhibitors for  $\beta$ -secretase, (to be submitted to **Angewandte Chemie** )

14. Bernhard M. Kohli, Zoë V. Goodger, Lawrence Rajendran, Ruth C. von Rotz, Roger M. Nitsch, Uwe Konietzko (2008) Nuclear signaling by the APP intracellular domain occurs predominantly through the endocytic BACE pathway (*submitted*)
15. Lawrence Rajendran, Julia Beckmann, Astrid Magenau, Katharina Gaus, Antonella viola, Bernd Giebel and Harald Illges  
The endocytic proteins, flotillins are involved in the polarization of leukocytes and Hematopoietic stem cells (*Submitted*) (corresponding author)
16. Julia Beckmann, Lawrence Rajendran, Bernd Giebel  
Cell polarity is a prerequisite for migration and homing of primitive human hematopoietic cells (*Submitted* )
17. Lawrence Rajendran and Harald Illges  
Internalization and ubiquitination regulate raft residency of Flotillins (*in preparation*) (corresponding author)

#### Review articles and book chapters

18. Lawrence Rajendran and Kai Simons  
Lipid rafts and membrane dynamics.  
J. Cell Sci, 1099-102. (2005) **Times Cited: 94**
19. Lawrence Rajendran and Kai Simons (2008) Subcellular targeting strategies in drug design and development, **Nature Reviews Drug Discovery** (*in preparation*) –*invited review*
20. Lawrence Rajendran and Kai Simons (2008) Membrane targeting and Trafficking in Alzheimer's Disease, **Foundation Ipsen Series** (*submitted*) –*invited review*
21. Lawrence Rajendran and Kai Simons (2008) Membrane targeting in drug design and development, **Cell Cycle** (*in preparation*) –*invited review*

#### Gastvorträge

- May 2008: Institut Curie, Paris (*Membrane trafficking and targeting in Alzheimer's Disease*)
- May 2008: Ecole Normale Superieure, Paris (*Systems and Cell Biology of Alzheimer's Disease*)
- April 2008: Foundation Ipsen meeting, Paris (*Membrane trafficking and targeting in Alzheimer's Disease*)
- April 2008: University of Tübingen, Tübingen, (*Systems and Cell Biology of Alzheimer's Disease*)
- February 2008: Katholieke Universiteit Leuven, Belgium (*Systems and Cell Biology of Alzheimer's Disease*)

- February 2008: Dept. Neurobiology, Max Planck Insitute for Brain Research, Frankfurt –do-
- February 2008: University of Cologne & Max Planck Institute for Biology of Aging, Cologne –do-
- January 2008: Yale University School of Medicine –do-
- April 2006: Experimental Biology 2006, San Francisco, *Role of rabs and rafts in Alzheimer's Disease*
- March 2006: St. Moritz workshop on APP processing and function, St. Moritz, Switzerland –do-
- December 2005: University of Zurich, Psychiatry research Department, Zurich, Switzerland (*Alternate Secretion of A $\beta$* )
- September 2005: Abnormal proteins in the pathogenesis of neurodegenerative disorders meeting in Brussels, Belgium –do-
- July 2005: FEBS-IUBMB meeting, Budapest, Hungary –do-
- June 2005: FEBS workshop Dijon on Recent advances in lipid metabolism and related disorders –do-
- March 2005: Abnormal proteins in the pathogenesis of neurodegenerative disorders meeting satellite meeting to 7<sup>th</sup> International conference AD/PD 2005, Sorrento/Naples, Italy (*Alternate Secretion of A $\beta$* )
- January 2005: Transregio meeting, University of Regensburg (*Alternate Secretion of A $\beta$* )
- November 2004: Transregio meeting, ZMBH, Heidelberg (*Alternate Secretion of A $\beta$* )

## Lehrtätigkeit

1996-1997	Klinische Chemie und Biochemie
1997-2000	Biologie und Immunobiologie
2006	Zellbiologie und Neurobiologie