

## **PRIYANKA NARAYAN**

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### **EDUCATION AND MAJOR RESEARCH TRAINING**

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- JUL 2017–PRESENT **Picower Institute for Learning and Memory, MIT** (Cambridge, MA, USA)  
NIH-NIA K99 Postdoctoral Research Fellow  
Advisor: Professor Li-Huei Tsai  
*Using iPSC-derived neural cells to study APOE4 in neurodegenerative disease*
- JAN 2013–JUL 2017 **Whitehead Institute for Biomedical Research** (Cambridge, MA, USA)  
Helen Hay Whitney Postdoctoral Research Fellow  
Advisor: Professor Susan Lindquist  
*A yeast to human cell approach to studying the biology of APOE4*  
Postdoc ended due to advisor's passing (2016)
- OCT 2008–JAN 2013 **University of Cambridge, St. John's College** (Cambridge, UK),  
Ph.D in Chemistry  
Marshall Scholar, NSF Graduate Research Fellow  
Advisors: Professor David Klenerman and Professor Sir Christopher Dobson  
*Single molecule studies of amyloid- $\beta$  aggregation*
- SEPT 2004–JUN 2008 **Stanford University** (Stanford, CA, USA)  
B.S. with Honors in Chemistry  
Advisor: Professor Chaitan Khosla  
*Antigen presentation in Celiac Sprue*

### **FELLOWSHIPS, AWARDS, AND HONORS**

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| JUL 2017 | NIH-NIA K99 Pathway to Independence Fellowship                         |
| MAY 2014 | Whitehead Postdoc Association Travel Award                             |
| JAN 2014 | Helen Hay Whitney Postdoctoral Fellowship                              |
| NOV 2012 | Student talk award, Proteostasis and Disease Symposium                 |
| JUN 2010 | Johnian Society Grant  |
| APR 2010 | NSF Graduate Research Fellowship                                       |
| MAR 2010 | UK Young Researcher 2010 Nobel Laureates Meeting, Lindau Germany       |
| JUN 2008 | S.S. & I.M.F. Marsden Memorial Prize in Chemistry, Stanford University |
| DEC 2007 | Marshall Scholarship – St. John's College Marshall Scholar             |
| APR 2007 | MIT Center for Materials Science NSF-REU Summer Fellowship             |
| APR 2007 | Goldwater Scholarship  |
| DEC 2006 | Xerox Technical Minority Scholarship                                   |
| JUN 2006 | Stanford University Bing Undergraduate Chemistry Fellowship            |

## **PUBLICATIONS (MOST RECENT LISTED FIRST)**

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Google Scholar: [https://scholar.google.com/citations?hl=en&user=41jlg6gAAAAJ&view\\_op=list\\_works](https://scholar.google.com/citations?hl=en&user=41jlg6gAAAAJ&view_op=list_works)

\* denotes equal contribution

**Narayan, P.\***, Sienski, G.\*, Lin, Y-T., Seo, J., Bonner, J.M., Baru, V., Haque, A., Freyzon, Y., Landgraf, D., Hesse, W.R., Valastyan, J., Barrasa, M.I., Tsai, L-H., Lindquist, S., *PICALM rescues endocytic defects caused by APOE4*, submitted (2018). *Preprint available upon request*

Sienski, G.\*, **Narayan, P.\***, Kory, N., Boland, S., Baru, V., Arczewska, A.A., Lewis, C.A., Sabatini, D.M., Lindquist, S., *APOE4-induced lipid imbalance is rescued by choline supplementation*, submitted (2018). *Preprint available upon request*

Kayatekin, C., Amasino, A., Gaglia, G., Flannick, J., Bonner, J.M., Fanning, S., **Narayan, P.**, Barrasa, I.M., Pincus, D., Landgraf, D., Nelson, J., Hesse, W.R., Costanzo, M., AMP T2D-GENES Consortium, Myers, C.L., Boone, C., Florez, J.C., Lindquist, S., *Translocon declogger Ste24 protects against IAPP oligomer-induced proteotoxicity*, Cell (2018) [pdf](#)

Ilijina, M., Garcia, G.A., Dear, A.J, Flint, J., **Narayan, P.**, Michaels, T., Dobson, C.M., Frenkel, D., Knowles, T.P.J., Klenerman, D., *Quantitative analysis of co-oligomer formation by amyloid-beta peptide isoforms*, Scientific Reports (2016) [pdf](#)

Whitcomb, D.J., Hogg, E.L., Regan, P., Piers, T., **Narayan, P.**, Whitehead, G., Winters, B.L., Kim, D.H., Kim, E., St George-Hyslop, P., Klenerman, D., Collingridge, G.L., Jo, J., Cho, K., *Intracellular oligomeric amyloid- $\beta$  rapidly regulates GluA1 subunit of AMPA receptor in the hippocampus*, Scientific Reports (2015) [pdf](#)

Ganzinger, K.A.\*, **Narayan, P.\***, Qamar, S.S., Weimann, L., Ranasinghe, R.T., Aguzzi, A., Dobson, C.M., McColl, J., St George-Hyslop, P., Klenerman, D., *Single-molecule imaging reveals that small amyloid- $\beta_{1-42}$  oligomers interact with the cellular prion protein (PrP<sup>C</sup>)*, ChemBioChem (2014) [pdf](#)

**Narayan, P.\***, Ehsani, S.\*, Lindquist, S. *Combating neurodegenerative disease using chemical probes and model systems*. Nature Chemical Biology (2014) [pdf](#)

**Narayan, P.\***, Holmstrom, K.M.\*, Kim, D.H., Whitcomb, D.J., Wilson, M.R., Wood, N.W., Dobson, C.M., Cho, K., Abramov, A.Y., Klenerman, D., *Rare individual amyloid- $\beta$  oligomers act on astrocytes to initiate neuronal damage*, Biochemistry (2014) [pdf](#)

Matlack, K.E.\*, Tardiff, D.F.\*, **Narayan, P.**, Hamamichi S., Caldwell K.A., Caldwell G.A., Lindquist S., *Clioquinol promotes the degradation of metal-dependent amyloid- $\beta$  ( $A\beta$ ) oligomers to restore endocytosis and ameliorate  $A\beta$  toxicity*, Proceedings of the National Academy of Sciences (2014) [pdf](#)

**Narayan, P.\***, Ganzinger, K.A.\*, McColl, J.T., Qamar, S., St. George-Hyslop, P.G., Dobson C.M., Klenerman, D., *Single molecule imaging of the interaction between amyloid- $\beta$  peptides and the membranes of hippocampal cells*, Journal of the American Chemical Society (2013) [pdf](#)

**Narayan, P.**, Orte, A., Clarke, R.W., Bolognesi, B., Hook, S., Ganzinger, K.A., Meehan, S., Wilson, M.R., Dobson, C.M., Klenerman, D., *The extracellular chaperone clusterin sequesters oligomeric forms of the Alzheimer's disease-associated  $A\beta_{1-40}$  peptide*, Nature Structural and Molecular Biology (2012) [pdf](#)

**Narayan, P.**, Meehan, S., Carver, J.A., Wilson, M.R., Dobson, C.M., Klenerman, D., *Amyloid- $\beta$  oligomers are sequestered by both intracellular and extracellular chaperones*, Biochemistry (2012) [pdf](#)

Schweller, M., Constantinou, P.E., Frankel, N.W., **Narayan, P.**, Diehl, M.R., *Design of DNA-Conjugated Polypeptide-Based Capture Probes for the Anchoring of Proteins to DNA Matrices*, Bioconjugate Chemistry (2008) [pdf](#)

## PATENTS

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Cells expressing Apolipoprotein E and uses thereof. Lindquist, S., **Narayan, P.** (PCT/US2015/049674, 2015). *Licensed*

## INVITED TALKS, ORAL PRESENTATIONS

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- JULY 2017      Invited talk, **Symposium to remember Susan Lindquist** (Cambridge, MA)
- JUNE 2014      Invited talk, **International Congress on Clusterin** (Paris, France)
- DEC 2012      Invited lecture, **City of Hope Beckman Research Institute**, (Duarte, CA)
- NOV 2012      Oral presentation, **Proteostasis and Disease** (Wollongong, Australia)
- FEB 2012      Oral presentation, **Biophysical Society Annual Meeting** (San Diego, CA)
- JAN 2012      Oral presentation, **Gordon Research Conference on Protein Folding Dynamics** (Ventura, CA)
- JAN 2012      Oral presentation, **Gordon Research Seminar Protein Folding Dynamics** (Ventura, CA)
- JUNE 2011      Oral Presentation, **FASEB Summer Research Conference on Protein Aggregation** (Snowmass, CO)

## POSTER PRESENTATIONS

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- JULY 2018      Poster, **The Protein Society Annual Meeting** (Boston, MA)
- JUNE 2017      Poster, **Mechanisms of Neurodegeneration-EMBL** (Heidelberg, Germany)
- AUGUST 2016      Poster, **Gordon Research Conference on Neurological Disease** (Girona, Spain)
- APRIL 2016      Poster, **Cold Spring Harbor Conference on Cell Stress and Chaperones** (Cold Spring Harbor Labs, NY)
- APRIL 2014      Poster, **Cold Spring Harbor Conference on Cell Stress and Chaperones** (Cold Spring Harbor Labs, NY)
- JUL 2012      Poster, **FASEB Summer Research Conference on Protein Folding in the Cell** (Saxtons River, VT)
- MAR 2011      Poster, **International Congress on Alzheimer's and Parkinson's Diseases** (Barcelona, Spain)
- FEB 2010      Poster, **Biophysical Society Annual Meeting** (San Francisco, CA, USA)
- AUG 2007      Poster, **MIT Center for Materials Science and Engineering REU** (Cambridge, MA, USA)
- OCT 2006      Poster, **Stanford Undergraduate Research Poster Session** (Stanford, CA USA)

## **OTHER RESEARCH EXPERIENCE**

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- JUN 2007–AUG 2007 NSF-REU Research, **Massachusetts Institute of Technology** (Cambridge, MA)  
Research Topic: *Engineering a self-oscillating polyelectrolyte multilayer*  
Research Advisors: Professor Michael Rubner and Professor Paula Hammond
- SEPT 2005–JUN 2008 Undergraduate Research, **Stanford University** (Stanford, CA)  
Research Topics: *Characterization of antigen presentation in Celiac Sprue*  
Research Advisor: Professor Chaitan Khosla
- SEPT 2003–SEPT 2005 Undergraduate Research, **California Institute of Technology** (Pasadena, CA)  
Research Topic: *Immobilization of proteins on DNA structures, Using non-natural amino acid incorporation to engineer proteolytically resistant peptides*  
Research Advisors: Professor David Tirrell and Professor Michael Diehl

## **TEACHING AND MENTORSHIP**

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- JULY 2017–PRESENT **Mentorship** of technical associates on projects using iPSC-derived cell types to study the role of Alzheimer disease risk factors
- MAY 2014–MAY 2015 **Mentorship** of (3) graduate rotation students on various yeast genetics and microscopy projects
- DEC 2012 **Guest lecture** on “Protein Misfolding and Disease” at City of Hope, Graduate School class in Special Topics in Biochemistry course
- SEPT 2009–JUN 2010 **Teaching Assistant** Part 1A Chemistry (organic, physical, inorganic) (University of Cambridge)
- SEPT 2006–MAY 2007 **Tutor** for Stanford undergraduates in general and organic chemistry

## **SCIENCE OUTREACH AND SERVICE**

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- JAN 2017–JUN 2017 **Cambridge NetPals Program**, Members of the scientific community develop 1-on-1 mentoring relationships with middle-school students from underprivileged backgrounds
- OCT 2015 **Boston HUBweek**, Inside Kendall Square, Whitehead Institute session—gave a talk on my research to the general public
- NOV 2014 **Noble and Greenough School**, coordinated site visit at Whitehead Institute including classroom and microscopy demos
- AUG 2014–JUN 2017 **CampBIO**, *introducing young girls to science* by Whitehead Institute and Science from Scientists—designed a course to introduce middle-school girls to protein folding
- OCT 2013–JUN 2017 **Big Sister Association of Greater Boston**, “Big for a Day” program, big sister mentor to young girls

- SEPT 2013–JUN 2017 **Whitehead Partners Program**, Members of Whitehead Institute are paired with local high school teachers for curricular development
- AUG 2013 **CampBIO**, by Whitehead Institute and Science from Scientists. Lab exercise leader for middle school students understand protein folding
- JUNE 2013 **A Girl's Guide to Understanding Life Science**, Whitehead Institute. Led a program module for middle-school girls to understand protein folding
- APR 2013 **Picture this: Neuroimaging and the Brain**, workshop for high-school students by Whitehead Institute, lunch host and discussion leader about careers in science and what it means to be a scientist
- MAR 2013 **MIT Congressional Visit Days**, member of the MIT Science Policy Initiative delegation to lobby members of congress for increased science funding