

Sara H. Rouhanifard

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Research Experience

Postdoctoral Researcher, University of Pennsylvania

Philadelphia, PA

Principal Investigator: Arjun Raj, Ph.D, *Associate Professor of Bioengineering*

February 2015–Current

- Visualizing RNA editing on mammalian cells to study subcellular localization and single cell heterogeneity.
- Developing non-enzymatic amplification tools for imaging and sorting on mRNA differences in single cells.

Graduate Researcher, Albert Einstein College of Medicine

Bronx, NY

Principal Investigator: Peng Wu, Ph.D, *Associate Professor of Biochemistry*

September 2010–January 2015

- Developed a magnetic, glyco-nanoparticle for enriching human dendritic cells from peripheral blood.
- Developed histological methods to visualize complex polysaccharides on diseased human samples. Applied this method towards the early detection of lung adenocarcinomas.
- Discovered that the glycocalyx of intestinal Paneth cells contributes to the stem cell niche by regulating stem cell proliferation via N-acetyllactosamine on the cell surface

Education

Albert Einstein College of Medicine, Yeshiva University
Doctor of Philosophy in Biomedical Sciences, Department of Biochemistry

Bronx, NY
September 2014

Albert Einstein College of Medicine, Yeshiva University
Master of Science in Biomedical Sciences

Bronx, NY
July 2012

University of Massachusetts, Amherst
Bachelor of Science in Biochemistry and Molecular Biology

Amherst, MA
May 2007

Honors

Ruth S. Kirschstein F32 National Research Service Award

2017–current

Publications

Mellis IA, Gupte R, Raj A, **Rouhanifard SH**. Visualizing adenosine to inosine RNA editing in single mammalian cells. *Nature Methods*. Accepted May 2017.

Casson CN, Doerner JL, Copenhaver AM, Ramirez J, Holmgren AM, Boyer MA, Siddarthan IJ, **Rouhanifard SH**, Raj A, Shin S. Neutrophils and Ly6Chi monocytes collaborate in generating an optimal cytokine response that protects against pulmonary *Legionella pneumophila* infection. *PLoS Pathog*. 2017 Apr 6;13(4):e1006309.

Rouhanifard SH, Lopez-Aguilar A, Wu P. N-acetyllactosamine is a negative regulator of stem cell proliferation and differentiation in crypt organoids. Manuscript is currently in preparation.

Rouhanifard SH, Lopez-Aguilar A, Wu P. CHoMP: A Chemoenzymatic Histology Method Using ‘Clickable’ Probes. *ChemBioChem*. 2014 Dec 15;15(18):2667–73.

Rouhanifard SH, Nordström LU, Zheng T, Wu P. Chemical probing of glycans in cells and organisms. *Chem Soc Rev*. 2013 May 21;42(10):4284–96. Review.

Rouhanifard SH, Xie R, Zhang G, Sun X, Chen X, Wu P. Detection and isolation of dendritic cells using Lewis X-functionalized magnetic nanoparticles. *Biomacromolecules*. 2012 Oct 8;13(10):3039–45.

Zheng, T; **Rouhanifard SH**; Jalloh AS; Wu P. Click Triazoles for Bioconjugation. *Top. Heterocycl. Chem.* **2012**, 28,163.

Bachu R, Padlan FC, **Rouhanifard S**, Brenowitz M, Schlatterer JC. Monitoring equilibrium changes in RNA structure by 'peroxidative' and 'oxidative' hydroxyl radical footprinting. *J Vis Exp*. 2011 Oct 17;(56):e3244.

Huse JT, Brennan C, Hambarzumyan D, Wee B, Pena J, **Rouhanifard SH**, Sohn-Lee C, le Sage C, Agami R, Tuschl T, Holland EC. The PTEN-regulating microRNA miR-26a is amplified in high-grade glioma and facilitates gliomagenesis in vivo. *Genes Dev*. 2009 Jun; 23(11):1327-37.

Pena JT, Sohn-Lee C, **Rouhanifard SH**, Ludwig J, Hafner M, Mihailovic A, Lim C, Holoch D, Berninger P, Zavolan M, Tuschl T. miRNA in situ hybridization in formaldehyde and EDC-fixed tissues. *Nat Methods*. 2009 Feb; 6(2):139-41.

Thum T, Gross C, Fiedler J, Fischer T, Kissler S, Bussen M, Galuppo P, Just S, Rottbauer W, Frantz S, Castoldi M, Soutschek J, Koteliansky V, Rosenwald A, Basson MA, Licht JD, Pena JT, **Rouhanifard SH**, Muckenthaler MU, Tuschl T, Martin GR, Bauersachs J, Engelhardt S. MicroRNA-21 contributes to myocardial disease by stimulating MAP kinase signalling in fibroblasts. *Nature*. 2008 Dec 18; 456(7224):980-4.

Vallender EJ, Priddy CM, **Hakim S**, Yang H, Chen G-L, Miller GM. Functional variation in the 3' UTR of the serotonin transporter in human and rhesus macaque. *Genes, Brain and Behavior*. 2008 Aug; 7(6):690-7.

Chen GL, Novak MA, **Hakim S**, Xie Z, Miller GM. Tryptophan hydroxylase-2 gene polymorphisms in rhesus monkeys: association with hypothalamic pituitary-adrenal axis function and in vitro gene expression. *Molecular Psychiatry*, 2006 Jul; 11(10):914-28.

Teaching Experience

Teaching certificate from Fundamentals of Course Design offered at AECOM.
Teaching Assistant for Graduate Biochemistry Course

Spring 2013
Fall 2013

Professional Memberships

New York Academy of Science, Member.
American Chemical Society, Member.

References

Peng Wu, Ph.D.
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