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CHAIRMAN'S CORNER

Research and Funding with Stem Cells

Written by Monica Roth

The opportunities to enter into stem cell research at RWJMS/Rutgers and within the State of New Jersey are continually expanding. In this issue of MINIM, I will briefly outline some of the opportunities available for researchers to participate into the field.

The New Jersey Commission on Science and Technology has held two rounds of grant funding programs for Stem Cell research. The first was in FY2006 and the last was completed in June 2007. In the first round, individual grant awards were made, in addition to funds to support the Stem Cell Training Course, to provide training for NJ scientist to gain hands-on experience with human embryonic stem cells (hES cells). The first training course was held in January, 2007 at the Keck Center for Collaborative Research, which I attended. Unlike the stem cell course I had taken at Cold Spring Harbor, which was completely lecture based, this course provided the intensive practical training for cell culture of NIH approved hES cells. The level of training and the convenience of being on Busch campus cannot be understated. This is a great opportunity for people to learn how to manipulate hES cells. Out of attending this course, new collaborations were developed.

In the past round of NJ Stem Cell funding, two Core Facilities Grants were approved, aimed at developing sites for non-NIH approved hES cell lines. The first is headed by Dr. Martin Grumet (Rutgers at the Keck Center) and the PI of the second is Dr. Patrizia Casaccia-Bonnel (UMDNJ). These two core facilities aim at providing space and resources to the UMDNJ/Rutgers scientific communities for non-NIH approved stem cell research.

The field of stem cell biology is open to highly interactive and innovative approaches. The success of the programs comes from the joining of ideas into this developing field. Therefore, collaborations of researchers with little or no background in stem cell biology with those with experience can be highly productive. At the last joint Rutgers/UMDNJ stem cell meeting, Dr. Probhas Moghe of Rutgers University outlined his application to the NSF for a New IGER Training Program for Stem Cell Biology due in October. They are looking for incorporation of new applications aimed at stem cell based functional tissue assemblies and devices in vitro. The NIH has also recently announced a RFA for program projects on NIH approved hES cells (RFA-GM-08-003).

The new building for the Stem Cell Institute is scheduled to be completed in 2010. A search for the Director is underway. As NJ residents, the November election can have a great impact on stem cell research in NJ. On the ballot, voters will decide whether to authorize the borrowing of \$450 million over 10 years to support state sponsored research grants. The "get-out-and-vote" turnout will be critical in this election and for the future of stem cell research in NJ.



Publications

Sarangi, A., Bupp, K., and **Roth, M.J.** (2007) Identification of a retroviral receptor used by an Envelope protein derived by peptide library screening. *Proc. Natl. Acad. Sci. USA*. **104**:11032-11037.

Habas R., and He X. (2007) Cell signaling: moving to a wnt-rap. *Curr Biol*. **17**(12):R474-7.

Harada, Y., Yokota, C., **Habas, R.**, Slusarski, D.C. and He, X. (2007) Retinoic acid-inducible G protein-coupled receptors bind to frizzled receptors and may activate non-canonical Wnt signaling. *Biochem. Biophys. Res. Commun.* **358**(4):968-975.

Johnson, D.S., Bai, L., Smith, B.Y., **Patel, S.S.** and Wang, M.D. (2007) Single-molecule studies reveal dynamics of DNA unwinding by the ring-shaped t7 helicase. *Cell*. **129**(7):1299-309.



Donmez, I., Rajagopal, V., Jeong, Y.J., and **Patel, S.S.** (2007) Nucleic acid unwinding by hepatitis C virus and bacteriophage T7 helicases is sensitive to base pair stability. *J. Biol. Chem.* **282**(29):21116-23.

Yin, C., Khan, J.A., Swapna, G.V., Ertekin, A., Krug, R.M., Tong, L. and **Montelione, G.T.** (2007) Conserved Surface Features Form the Double-stranded RNA Binding Site of Non-structural Protein 1 (NS1) from Influenza A and B Viruses. *J. Biol. Chem.* **282**(28):20584-92.

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Departmental News

Monica Roth was awarded a grant from the New Jersey Stem Cell Research Bioengineering Human ES Stem Cells program project entitled, "Targeting gene delivery to hES cells" (Patrizia Casaccia-Bonnel, PI, Project 4) in the amount of \$300,000 from 07/01/07-06/30/09.

Sangita Phadtare (Project team: Barbara Brodsky and Vikas Nanda) was awarded an UMDNJ-Education and Technology grant in the amount of \$20,000 for one year for the development of a program for dietary analysis which will be integrated into the second-year Nutrition course for medical students.

Abhishek Singh (Sarach Hitchcock-DeGregori's lab) defended his Ph.D. thesis entitled, "The role of stability and sequence specificity for tropomyosin binding to actin" on June 11, 2007.

Nupur Gupta (Celiné Gélina's Lab) defended her Ph.D. thesis entitled, "Gene expression profiling of Rel/NF- κ B factors and the identification of a crucial role for BLNK and BCAP repression in Rel's oncogenic activity" on July 11, 2007.



Congratulations to **Jean-Philippe Laine** (a postdoctoral fellow in Michael Hampsey's lab) and his wife Paula on the birth of their daughter, Anne-Sophie on July 19, 2007.

The **Graduate Program in Biochemistry and Molecular Biology** successfully renewed their grant entitled, "Graduate Training in Cellular and Molecular Biology" in the amount of \$315,250 from 07/01/2007-06/30/2011.

Publications...(continued from page 2)**In Press:**

Kozak, M. (2007) Some thoughts about translational regulation: forward and backward glances. *J. Cell. Biochem.*

Bandwar, R.P., Ma, N., Emanuel, S.A., Anikin, M., Vassilyev, D.G., **Patel, S.S.**, and McAllister, W.T. (2007) The transition to an elongation complex by T7 RNA polymerase is a multistep process. *J. Biol. Chem.*

Kishii, R., Falzon, L., Yoshida, T., Kobayashi, H. and **Inouye, M.** (2007) Structural and functional studies of the HAMP domain of EnvZ, an osmosensing transmembrane histidine kinase in *Escherichia coli*. *J. Biol. Chem.*

Bhattacharya, A., Wunderlich, Z., Monleon, D., Tejero, R. and **Montelione, G.T.** (2007) Assessing model accuracy using the homology modeling automatically software. *Proteins.*

Singh, B.N. and **Hampsey, M.** (2007) A transcription-independent role for TFIIB in gene looping. *Molecular Cell.*

Hampsey, M. (2007) Negative regulatory elements. *Encyclopedia of Life Sciences.*

Welcome to the Department

Sung Gun Kim, Ph.D., a postdoctoral fellow conducting research in the laboratory of Masayori Inouye.

Madhan Balaraman, Ph.D., a postdoctoral fellow conducting research in Barbara Brodsky's laboratory.

Peter Mazari, a MD/Ph.D. student conducting research in Monica Roth's laboratory.

Seema Sahdey and **Brenton Taggart**, undergraduate students from Rutgers University who are working on research projects under the guidance of Koichi Inoue in Masayori Inouye's laboratory this summer.

Dhara Kothari, a Rutgers University undergraduate student who is working on a research project in Oleg Mirochnitchenko' laboratory this summer.

Rupal Parikh, a student at the Academy for Allied Health Sciences, Scotch Plains, N.J., is participating in the "Partners in Science Program" administered by the Liberty Science Center in N.J. and will be working on a research project under the guidance of Sangita Phadtare.

Lissa Ynés Berroa Garcia, an undergraduate student at the Ponthical Catholic University of Puerto Rico who is enrolled in the RISE Program and will be working on a research project in Masayori Inouye's laboratory this summer under the guidance of Elena Severinova.

