

Technology Transfer and Entrepreneurship: Shuichi Takayama PhD

1. Candidate's own statement of contributions to technology transfer and entrepreneurial impact

In terms of accomplishments, we have ~10 patents and patent applications licensed to companies including a spin out company from my lab.

STREX has taken our sperm sorter patent (still pending), performed clinical tests, and is already marketing the system (actual sales still small).

ACCURI has licensed one of our microfluidic flow cytometry patents. I am not exactly sure how much of an impact our patent has had for commercialization of their product, but the company itself has been growing sales significantly over the past several years.

INCEPT BIOSYSTEMS is a company I co-founded to commercialize computerized microfluidic systems and embryo culture devices. The company is venture funded and developing their product for FDA approval and human clinical trials in the next year. A former graduate student and postdoc from my lab were early employees.

My entrepreneurship efforts outside the University are currently focused on Incept Biosystems. Some of our newer technology that I feel will be important to start consider more for technology transfer and entrepreneurship are: i) Nano-liquid printing for the nearer term, and ii) Semi-fluid-conducting circuits in the longer term. I also have interactions with a cancer drug development company (Taiho Pharmaceuticals) that may be interested in using some of our drug assay technology.

Within the University, we always try to disclose and file inventions when we publish research that we feel may have commercial value. This exercise not only helps gain intellectual property, the process is also good training for students.

2. US and International Patents awarded (title, number, date issued)

1. Wong, C.-H.; Takayama, S. "Synthesis of 9-*O*-Acetylneuraminic Acid Oligosaccharides" U.S. Patent No. 5,766,887; June 16, 1998.
2. Wong, C.-H.; Orsat, B.; Moree, W.; Takayama, S. "Enantioselection of Amines Using Homocarbonates with Hydrolase" U.S. Patent No. 5,981,267; Nov. 9, 1999.
3. Takayama, S.; Ostuni, E.; LeDuc, P. Naruse, K.; Ingber, D. E.; Whitesides, G. M. "Differential treatment of selected parts of a single cell with different fluid components" U.S. Patent No. 6,653,089; Nov. 25, 2003.
4. Tung, Y.-C.; Grotberg, J.; Huh, D.; Skerlos, S.; Takayama, S.; Kurabayashi, K. "Flow cytometers and detection system of lesser size" U.S. Patent No. 7,105,355; Sept. 12, 2006. U.S. Patent No. 7,381,565; June 6, 2008
5. Takayama, S.; Zhu, X.; Bahng, J.H.; Liu, E.; Shim, J. "Method of nanopatterning by forming cracks in a coated polymer substrate" U.S. Patent No. 7,232,686; June 19, 2007.

3. Industry interactions

1. Taiho Pharmaceuticals, Japan: Consult, Gift funds, Potential tech transfer partner.
2. Incept Biosystems: Co-Founder, Board of directors, Interim chief technology officer, Scientific advisory board.

4. Entrepreneurial activities

1. Co-founder Incept Biosystems, Inc.