

Idaho Incubation Fund Program

Progress Report Form

Proposal No. IF14-012
Name: Patrick J Hrdlicka
Name of Institution: University of Idaho
Project Title: Production of gender-sorted sperm
Reporting Period: August 1 – December 31

Information to be reported in your progress report is as follows (attach additional information as needed):

1. Summary of project accomplishments for the period just completed and plans for the coming reporting period:

The project is off to a good start. A systematic screening of different DNA targeting Invaders, revealed a couple of promising candidates for detection of gender-specific gene targets in fixed and live sperm cells from the target species. Systematic perturbations of these promising leads were synthesized and evaluated. Interestingly, the attached fluorophore seems to have a marked influence on nuclear uptake efficiency. A scientist from our industry partner visited our laboratory early on in the project period to explore this fact in greater detail. Moreover, a number of nanoparticle-linked Invaders were prepared to facilitate nuclear uptake and binding to chromosomal DNA.

2. Summary of budget expenditures for the period just completed (include project burn rate): Per December 10 2013, the following expenditures were made:

Salaries: \$6,720 (72% of allotted funding remaining)
Fringe benefits: \$465 (77% of allotted funding remaining)
Travel: 0\$ (100% of allotted funding remaining)
Other expenses: \$3,635 (72% of allotted funding remaining)
Trustee/benefits: \$3,793 (53% of allotted funding remaining)

Total: \$14,620 (69% of allotted funding remaining)

August 1 – December 10 accounts for ~42% of the total project time (~58% time remaining). Thus, the burn rate seems appropriate, especially when considering that the PI first will be drawing summer salary in 2014.

3. Numbers of faculty and student participation resulting from the funding, including internships:

Patrick Hrdlicka (faculty)

Dale C. Guenther (Ph.D.-student; fully funded)

Saswata Karmakar (Ph.D.-student; partially funded)

Jianqin Liu (Visiting Scientist from our industry partner; self-funded)

4. List patents, copyrights, plant variety protection certificates received or pending:

PCT application filed in 2012.

5. List technology licenses signed and start-up businesses created:

Revised licensing agreement executed in 2012.

6. Status of private/industry partnerships (include enough information to judge level of engagement):

We continue to have a fruitful collaboration with our industry partner. Two video-conferences, 3h each, were conducted during the project period, along with more informal contact via email. Moreover, a scientist from our industry partner visited our laboratory for three weeks in August 2013 to stimulate mutual knowledge transfer.

7. Any other pertinent information that will indicate to the council that the project is meeting satisfactory progress.

Results from our fundamental Invaders optimization studies were recently published (financial support from IF14-012 was acknowledged) in an acclaimed international peer-reviewed journal: S. Karmakar, D. C. Guenther and P. J. Hrdlicka, "Recognition of mixed-sequence DNA duplexes: Design guidelines for Invaders based on 2'-O-(pyren-1-yl)methyl-RNA monomers", J. Org. Chem., 2013, 78, 12040-12048 (impact factor: 4.5).