Idaho Incubation Fund Program

Bi-Annual Progress Report Form

Proposal No.	**12683**
Name:	**Patrick J Hrdlicka**
Name of Institution:	**University of Idaho**
Project Title:	**DEVELOPMENT OF DIAGNOSTIC KITS FOR GENDER DETERMINATION OF ANIMAL EMBRYOS**

Information to be reported in your progress report is as follows:

1. Provide a summary of project goals/milestones for the period just completed, accomplishments for the period just completed, and plans and goals for the coming quarter: The project is proceeding successfully and according to schedule. Approximately ~20 Cy3-labeled *Invaders* have been designed, synthesized and evaluated against the gender-specific gene, which will form the basis of the diagnostic kit. Lead *Invaders* have been identified and further refined (e.g., variations in modification pattern; six fluorophores other than Cy3 have been attached to Invaders). Our plans and goals for the coming quarter include synthesis and attachment of nucleus-directing entities to optimized Invaders, the rationale being that certain dyes and peptides are specifically transported to the nucleus, where chromosomal DNA is located. Attachment of such entities to gender-specific Invaders is likely to result in more efficient and faster nuclear localization and reduced assay time.

2. Provide a summary of budget expenditures for the period: Funds have been used toward (amounts are through Nov 2012): a) salary ($7,000), fringe ($450) and tuition ($3,500) for a graduate research assistant and b) operating expenses ($3,500) covering reagents, solvents, and supplies for machine-assisted synthesis of Invader oligonucleotides; columns, solvents and consumables for HPLC purification of Invaders; and instrumentation time.

3. List patents, copyrights, plant variety protection certificates received or pending: The PI and University of Idaho have filed the following PCT application during the project period - P. J. Hrdlicka, “Embodiments of a probe and method for targeting nucleic acids”, PCT/US2012/047442, Univ. Idaho, July 19, 2012.

4. List invention disclosures, patent, copyright and PVP applications filed, technology licenses/options signed, start-up businesses created, and industry involvement: The evaluation of the ~20 Cy3-labeled Invaders mentioned under “1”, is conducted in collaboration with our industry partner, Minitube of America (Verona, WI). The PI visited Minitube in October 2012 to assess project progress and to discuss future strategies.

5. Include funding burn rate: Amounts given are through Nov 2012. Approximately ~29% of the allocated funds have been spent, which is on par with expectations (~58% of time remaining on the project, i.e., project is 42% complete). Funds for PI summer salary and travel have not been utilized yet. This, together with regular expenses covering research assistant salary/fees/tuition and operating expenses, ensures that we will spend funds in a balanced and timely manner.

6. Any other pertinent information: A manuscript entitled “Sequence-unrestricted targeting of chromosomal DNA at non-denaturing conditions using next-generation Invader LNAs (locked nucleic acids)” describing the preliminary results from the Hrdlicka-Minitube collaboration will be submitted to a high-impact international journal in early 2013. A copy of the manuscript can be obtained upon request.