Astrobiology and Missions at NASA

IN HIS NEWS FOCUS ARTICLE "ASTROBIOLOGY fights for its life" (19 Jan., p. 318), A. Lawler describes NASA's astrobiology program as largely disconnected from its space-flight missions. But recent competitions paint a different picture. For example, Bruce Jakosky, the Principal Investigator (PI) of the Mars Atmosphere and Volatile Evolution mission (MAVEN), one of two candidates for the next Mars Scout, is also the PI of the NASA Astrobiology Institute’s (NAI) University of Colorado team. MAVEN would study atmospheric gas escape from Mars to understand what effect atmospheric evolution has had on the planet's climate and habitability, placing that one piece of the puzzle into the larger context of the planet's biological potential. The NAI stimulates this kind of integrative thinking by bringing together broad, multidisciplinary groups of scientists who might not otherwise have the opportunity to work together and learn how to contribute to each other's research. MAVEN is an example of what can grow from this fertile ground.

The Mars Scout selections included two instrument development efforts for ESA's ExoMars mission, both of which are direct products of the NASA Astrobiology program. In addition, two PI instruments on the 2009 Mars Science Laboratory (MSL) received Astrobiology support to enable their selection for flight. NAI current and former PIs and Co-Investigators are centrally involved in operations and science analysis for the Mars Exploration Rovers, Spirit and Opportunity.

The NAI also contributes to future missions through Focus Groups that mobilize expertise from across the Institute and the wider scientific community. The Mars Focus Group began by playing a seminal role in the 2009 Mars Science Laboratory (MSL) receiving Astrobiology support to enable their selection for flight. NAI current and former PIs and Co-Investigators are centrally involved in operations and science analysis for the Mars Exploration Rovers, Spirit and Opportunity.

This is a complex social and ethical question. Many who have examined the issue closely, including ourselves, have concluded that researchers should compensate women only for their direct expenses, to avoid inducing economically vulnerable women to accept the significant risks of egg retrieval when they would not otherwise be willing to do so. This perspective has been adopted as law in California and a number of countries, and it is recommended in the U.S. National Academies guidelines. In other words, the ISSCR is now suggesting that governments and agencies abdicate their role to protect the health and safety of women in favor of a patchwork of inconsistent and opaque decisions made by local committees.

Members of the ISSCR group justify weakening the rules on egg procurement by citing "cultural and political differences" (2). This is an unhelpful relativism that could allow too easily endorse a kind of "tissue tourism," in which researchers arrange to obtain women’s eggs wherever the rules are most lax.

This prospect, and emerging inconsistencies among standards for stem cell research, point to the need for binding rules to ensure that stem cell and other biotechnologies are developed and used in ways that truly support, rather than actually undermine, health and well-being.

CARL B. PILCHER
Director, NASA Astrobiology Institute, NASA Ames Research Center, Moffett Field, CA 94035, USA.

Letters to the Editor
Letters (~300 words) discuss material published in Science in the previous 3 months or issues of general interest. They can be submitted through the Web (www.submit2science.org) or by regular mail (1200 New York Ave., NW, Washington, DC 20005, USA). Letters are not acknowledged upon receipt, nor are authors generally consulted before publication. Whether published in full or in part, letters are subject to editing for clarity and space.