

# nature medicine

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## About fertility

Broadly stated, the aim of biomedical research is to uncover the etiology of disease, in hopes of developing new therapies that will save or improve human lives. However, one branch of medical science does not address this issue directly, yet its importance for our collective future surpasses that of many other fields. That branch is fertility. *Nature Medicine*, in a joint project with our colleagues at *Nature Cell Biology*, presents with this issue a special print supplement on this subject.

Why fertility? The answer is several-fold. First, the basic science of fertility—including the biology of meiosis, sexual reproduction and reproductive endocrinology—is a fascinating one, and past advances in the field are cornerstones of modern cell biology, genetics and physiology.

A motivating force for fertility research is the need of those facing difficulties in bearing children. Particularly in developed countries with the resources to support fertility interventions, the desire of infertile couples to bear offspring provides incentive for the development of new methods and technologies.

Finally, fertility science is unique in the degree of personal and emotional import the subject carries; whereas a new treat-

ment for diabetes may affect more people's lives directly, a new assisted reproduction technique (to cite a particularly charged example, reproductive cloning) has a much more profound impact on our public and private sensibilities. Thus any consideration of fertility treatments carries along a host of legal and ethical concerns.

In this supplement, we have tried to represent each of these diverse facets of fertility research. For the basic science aspect, two reviews cover the fundamental science of reproduction, including gamete production and fertilization, while two other reviews focus on genetic and environmental factors influencing fertility.

From a clinical perspective, current infertility treatments center around assisted reproductive technologies (ARTs), of which *in vitro* fertilization (IVF) is the most prominent. The field has come a long way since the first 'test-tube baby', Louise Brown. With more than 300,000 assisted reproductive procedures performed per year in the US and Europe combined and a success rate somewhere around 20%, upwards of 50,000 babies are born each year with the help of ART. These clinical achievements, however, are tempered by a number of uncertainties. Commentaries

in the supplement touch upon potential safety concerns surrounding IVF that have recently come to light, as well as an overview of the ART field, which also details how the governance of ART applications and research might be improved in the United States.

Also covered, in a historical perspective, is the state of contraception research, a field that juxtaposes the needs of developing countries against the economics of pharmaceutical ventures and the realities of the AIDS epidemic.

Finally, the larger societal implications of ART are discussed. Commentaries examine the economics of access to and use of IVF, as well as how the legal system is attempting to sort out the ethical questions raised when reproductive decisions move out of people's private lives and into the public arena.

These are changing times for fertility science. With stem cells, cloning, genetic screening and surrogacy in the headlines, and the stake we all share in the future of our species, the scientific and ethical issues surrounding this field are timely and relevant to us all. The innocence of the birds and bees is past, and Aldous Huxley's "Brave new world" may be around the corner.

## Lasker Awards 2002

Each year the Lasker Medical Research Awards celebrate outstanding scientists, their research and their passion. As *Nature Medicine* joins the Lasker Foundation in these celebrations, we are honored to publish commentaries written by the awardees.

The Basic Medical Research Award goes to two scientists, R. Schekman and R.E. Rothman, who independently, through genetic and biochemical approaches re-

spectively, dissected and reconstructed the cellular membrane trafficking system.

The Clinical Medical Research Award recognizes two clinicians, W.J. Kolff and B.H. Scribner, for saving the lives of hundreds of thousands of people through their development of renal hemodialysis technology.

The Special Achievement in Medical Science Award goes to J.E. Darnell for his

life-long dedication to biomedical research, his mentorship of budding researchers and his vision.

These scientists write about their research, their doubts, the scientific and moral questions they face, and their continued interest in problem-solving and the improvement of human health. *Nature Medicine* is pleased to present their stories, in the hope that they will serve as inspiration to young scientists.