



## Therapy for Reversal of Aging in Males

### The Technology

An effect of aging in males is a progressive decline of testosterone levels. Testosterone is not only necessary for functions of the male reproductive system including sperm production and erectile function, but also for the proper functioning of the muscles, skeleton, skin, liver, synovial tissue, bone marrow and kidney operation. Therefore, sustaining normal levels of circulating testosterone is clearly important for the overall well-being of the male. Currently, androgen deficiencies in aging humans are treated with direct androgen therapy. This type of therapy is not recommended for all aging men mainly due to concerns over prostate and cardiovascular health. Direct testosterone therapy has been linked to increased serum cholesterol levels and with rapid growth of the prostate.

Researchers at the University of Tennessee have demonstrated in a mouse model a method to rejuvenate the atrophied, malfunctioning aged Leydig cells in males. Leydig cells are the primary cells responsible for testosterone production in male mammals. By administering luteinizing hormone (LH) and thyroid hormone to the patient, atrophied and malfunctioning Leydig cells have been restored to their youthful size and testosterone secretory capacity. Further, by allowing the Leydig cells to rejuvenate and to naturally produce testosterone in a normal pulse-like manner, the adverse effects of direct testosterone therapy are eliminated.

Related publications:

- [Reproduction. 2007 Feb; 133 \(2\): 479-85.](#)
- [Histol Histopathol. 2006 Dec; 21 \(12\): 1295-302.](#)
- [Indian J Exp Biol. 2005 Nov; 43 \(11\): 939-62.](#)

### Benefits

- Alternative long-term therapy for maintaining normal levels of testosterone in males without traditional side-effects
- Improved male health due to reversal of aging of Leydig cells

### The Inventors

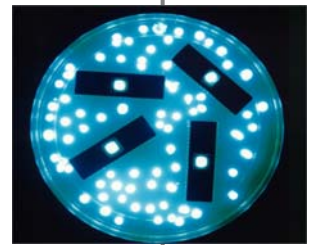
**Dr. Chamindrani Mendis-Handagama** is a Professor and Chief of the Reproduction Research Group in the Department of Comparative Medicine within the College of Veterinary Medicine at the University of Tennessee. Dr. Mendis-Handagama's laboratory is primarily focused on the stem cell differentiation into Leydig cells in the postnatal testis and rejuvenation of aged Leydig cells using rats and mice (including transgenic and knockout mice). Her work has also focused on finding the basic scientific information to develop a reversible male contraceptive that maintains normal androgen levels.

*Identifying, managing and licensing intellectual property from The University of Tennessee*

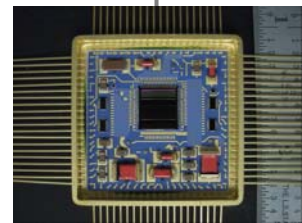
### AGRICULTURE



### BIOTECHNOLOGY



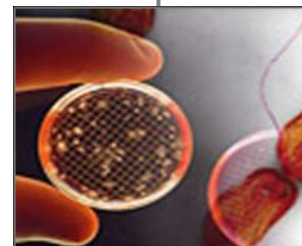
### ENGINEERING



### MATERIALS



### MEDICINE





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<http://utr.f.tennessee.edu>

## Patents

- US 10/449,634/application. Methods of Rejuvenating Leydig Cells and Enhancing Testosterone Production in a Male Subject.

## Contact

The University of Tennessee Research Foundation (UTRF) is a non-profit corporation responsible for commercializing University of Tennessee technologies and for supporting University research. UTRF is seeking parties interested in learning more about this technology and in exploring possible research and/or commercialization arrangements.

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