

**World Anti Doping Agency (WADA)
Health, Medical, and Research Committee
Address:**

Research Application

Date: **April 12, 2002**

1. Applicant Name (principal investigator)	Joseph Andrade, Ph.D.
2. Title/position	Professor of Bioengineering and Pharmaceutics
3. a. Organisation legal name b. Department name c. Address, phone, e-mail	University of Utah, Office of Sponsored Projects 1471 Federal Way, SLC, UT 84102-9020 USA Dept. of Bioengineering, University of Utah 50 S. Campus Center Dr., Rm. 2480 MEB SLC, UT 84112-9020 USA 801-581-4379 joeandrade@uofu.net
4. Administrative contact person (name, title, address, phone, e-mail)	Vincent A. Bogdanski, Manager Grants and Contracts, 1471 Federal Way SLC, UT 84102-9020 USA ospaawards@osp.utah.edu 801-581-3008
5. Project title (max 20 words)	Devices for Direct and Immediate Analysis of Testosterone and Related Steroids: Analysis and Review
6. Duration of project (max three years) Two Years Amount requested from WADA for each year	Start (date, month, year): Oct. 1, 2002 End (date, month, year): Sept. 30, 2004 Year 1: <u> \$75,000 </u> Year 2: <u> \$75,000 </u> Year 3: <u> </u> SUM (USD): <u> \$150,000 </u>

7. Other investigators participating in the project (name, title, affiliation):

J. Andrade, Professor of Bioengineering and Pharmaceutics,
University of Utah

801-581-4379 joeandrade@uofu.net

S. Kern, Assistant Professor of Pharmaceutics and Anesthesiology,
University of Utah

J. Janatova, Associate Research Professor of Bioengineering,
University of Utah

S.I. Jeon, Visiting Professor of Bioengineering,
University of Utah

June, 2002 through December, 2003

8. Project summary, suitable for publication (max 1000 words)

We propose to thoroughly assess and evaluate the potential for on site, multi-analyte dipstick analyses of hormones, drugs, and other agents of interest to WADA and its affiliated groups, with emphasis on our own expertise and technologies based on highly sensitive bio- and chemi-luminescence.

We expect to be able to work closely with WADA colleagues, with their advisors and consultants, and with other contractors/grantees.

We will provide a comprehensive progress report at the end of Year 1 and a full comprehensive review and assessment at the end of Year 2. We hope WADA will agree to the publication of a shortened version of the final report.

Year 1: we will evaluate the status and potential of
enzyme analytical pathways appropriate for steroid assays;
antibodies and methods for chemiluminescent immunoassays
for individual steroid hormones and their derivatives; and
affinity methods (such as Sex Hormone Binding Globulin – SHBG)
for steroid analyses;
prepare a progress report.

Year 2: we will consider
alternative pathways, enzymes, and ligands
based on a careful analysis of available genomes;
metabolic and pathway engineering, modeling,
and simulation to predict assay feasibility;
design a preliminary SteroidChip for WADA – related applications;
prepare a comprehensive report and a
publishable version for the greater community.