

**SPECIALIZED COOPERATIVE CENTERS PROGRAM IN
REPRODUCTION AND INFERTILITY RESEARCH**

RESEARCH MEETING

**May 10 -12, 2009
The Inn of Chicago Magnificent Mile
Chicago, Illinois**

AGENDA

Sunday, May 10

Times TBD **Research Focus Group Meetings**
Male Reproduction – Harbor Room
Ovary Physiology/Pathophysiology – Windy City Room
Endometrial Function/Dysfunction – St. Claire Room
Neuroendocrine/Pituitary – Michigan Room

**Monday, May 11
Buckingham Room**

8:00 - 8:10a **Opening Remarks**
Louis DePaolo, Chief, Reproductive Sciences Branch, Center for Population
Research, NICHD and Project Scientist, SCCPIR
Florence Haseltine, Director, Center for Population Research, NICHD

8:10 - 8:30 **State-of-the-SCCPIR**
Louis DePaolo

8:30 - 9:30 **Sadler Lecture**
Sperm Tales
Jerome Strauss, Virginia Commonwealth University

9:30 – 10:00 **Special Lecture**
*Integration of the SCCPIR and the Reproductive Medicine Network: Paradigm
for Translational Research*
Richard Legro, Pennsylvania State University

10:00 - 10:20 **Break**

Session I. Male Reproduction (Chairs: Deborah O'Brien, G. Stanley McKnight)

10:20 – 10:40 *Molecular Dissection of the Male Germ Cell Lineage Identifies Putative Spermatogonial Stem Cells in Rhesus Macaques*

B.P. Hermann, M. Sukhawani, D.R. Simorangkir, T.M. Plant, K.E. Orwig
University of Pittsburgh
Magee-Women's Research Institute & Foundation

10:40 – 11:00 *Glial Cell Line-Derived Neurotrophic Factor (GDNF) Expression by Sertoli Cells as a Potential Mediator of the Effects of Differentiated Spermatogenic Cells on Numbers of A_{single} and A_{aligned} Undifferentiated Spermatogonia*

W. Wright
Johns Hopkins Bloomberg School of Public Health

11:00 – 11:20 *FSH Transiently Blocks FSHR Transcription by Increasing ID2 and Decreasing USF Expression in Rat Sertoli Cells*

M.A. Wood, P. Viswanathan, W.H. Walker
University of Pittsburgh
Magee Women's Research Institute

11:20 – 11:40 *Accelerating Action of Adenosine on Sperm Motility: The Nucleoside Transporter SLC29A1 is not Required but the Adenosine A3 Receptor May Play a Role*

L.A. Burnett, J. Unadkat, B. Hille, D.F. Babcock
University of Washington

11:40 – Noon *Intratesticular Androgens and Spermatogenesis in Rat and Man*

J. Jarow, L.Luo, H. Chen, B. Zirkin
Johns Hopkins Bloomberg School of Public Health

Noon – 1:00p **Lunch**

1:00 – 1:10 **Remarks by Dr. Duane Alexander, Director, NICHD**

1:10 – 2:10 **Keynote Address**

Stem Cells, Pluripotency and Nuclear Reprogramming
Rudolf Jaenisch, Whitehead Institute for Biomedical Research

Session II. Metabolism, Obesity and PCOS (Basic) (Chairs: John Nestler, William Crowley)

2:10 – 2:30 *PPAR γ Regulates the GnRH- and FFA-Mediated Effects on the Inflammatory Kinases and Gonadotropin Expression in Pituitary Gonadotropes*

S. Sharma, P. Sharma, M. Hedlin, D.S. Mistry, J.M. Olefsky, N.J.G. Webster
University of California, San Diego
VA San Diego Healthcare System

2:30 – 2:50 *Rescue of Obesity-Induced Infertility in Female Mice Due to a Pituitary-Specific Knockout of the Insulin Receptor (IR)*
K.J. Brothers, S.A. DiVall, A. Wolfe, S.E. Carver, C.R. Kahn, R.S. Miller, S. Radovick, F.E. Wondisford
Johns Hopkins University School of Medicine
Joslin Diabetes Center

2:50 – 3:10 *Glucosensing in GnRH Neurons is Regulated by Androgens and Does Not Require K_{ATP} Channels*
A.V. Roland, S.M. Moenter
University of Virginia

3:10 - 3:30 **Break**

Session III. Metabolism, Obesity and PCOS (Clinical) (Chairs: John Nestler, William Crowley)

3:30 – 3:50 *Evolution of Day-Night GnRH Secretion Across Early Puberty: Evidence for Role of Progesterone and Androgens in Regulating Early Pubertal Maturation*
C.R. McCartney, S.K. Blank, K. Knudsen, C. Burt Solorzano, J.C. Marshall
University of Virginia

3:50 – 4:10 *Excessive Adiposity is Associated with Blunted Pubertal LH Production in Normal Adolescent Girls and Atypically Sexually Precocious Girls with Early Thelarche Plus Premature Adrenarche*
B.D. Bordini, E. Littlejohn, R.L. Rosenfield
University of Chicago Medical Center

4:10 – 4:30 *In Vitro Models of Human Ovarian Follicle Health and Disease*
T.K. Woodruff, M. Xu, S. Barrett, L. Lei, A. Shikanov, M. Urbanek, A. Dunaif, L.D. Shea
Northwestern University

4:30 – 4:50 *TGF- β 2 Levels are Reduced in Women with Polycystic Ovary Syndrome*
N. Raja-Khan, A.R. Kunselman, R.S. Spielman, R.S. Legro
Pennsylvania State University College of Medicine (Virginia Commonwealth University SCCPIR)
University of Pennsylvania School of Medicine (Virginia Commonwealth University SCCPIR)

Session IV: Models of Human Conditions (Chair: John Marshall)

4:50 – 5:10 *Human Endometrial Development and Function in Experimentally Induced Luteal Phase Deficiency*
S.L. Young, R.S. Usadi, J.M. Groll, R.A. Lininger, R.J. Zaino, M.A. Fritz, B.A. Lessey
University of North Carolina School of Medicine
Greenville Hospital System (University of North Carolina SCCPIR)

5:10 – 5:30 *The Role of Serotonin in Mediating Stress-Induced Infertility: Studies in a Monkey Model of Functional Hypothalamic Amenorrhea*
J.L. Cameron, C.L. Bethea, S.L. Berga, S.M. Herod, M.L. Centeno
Oregon National Primate Research Center, Oregon Health & Science University
University of Pittsburgh
Emory University

5:30 - 7:30 **Poster Presentations (Harbor/Windy City Rooms)**

Neuroendocrine-Pituitary

Proteasome Regulation of Dynamic Transcription Factor Occupancy on the GnRH-Stimulated Luteinizing Hormone β -Subunit Promoter (Poster #1)
H.E. Walsh, J. Andrade, M.A. Shupnik
University of Virginia

Activin Induces FSH β Gene Expression through Multiple FOXL2 Binding Sites (Poster #2)
P.S. Corpuz, P.L. Mellon, D. Coss
University of California, San Diego

Resveratrol Represses FSH β Gene Expression in L β T2 Gonadotrope Cells (Poster #3)
D. Lan, M. Lu, P.L. Mellon, J.M. Olefsky, N.J.G. Webster
University of California, San Diego

Prenatal Androgenization Alters Firing Activity of Gonadotropin-Releasing Hormone (GnRH) Neurons in Female Mice in a Manner Dependent on Glucose Concentration and Reversed by Metformin (Poster #4)
A.V. Roland, S.M. Moenter
University of Virginia

Male-Biased Effects on GnRH Neuron-Specific Deletion of the PI3K Regulatory Subunit P85 α on the Reproductive Axis (Poster #5)
M. Acosta-Martinez, J. Luo, C. Elias, A. Wolfe, J.E. Levine
Northwestern University (Johns Hopkins University SCCPIR)
Brigham & Women's Hospital, Harvard Medical School
University of Texas Southwestern Medical Center
Johns Hopkins School of Medicine

Genetic Rescue of Nonclassical ER α Signaling Normalizes Energy Balance in Obese, ER α Null Mutant Mice (Poster #6)
C.J. Park, Z. Zhao, D.J. Clegg, J. Weiss, C. Glidewell-Kenney, P. Chambon, J.L. Jameson, J.E. Levine
Northwestern University (Johns Hopkins University SCCPIR)
University of Texas Southwestern Medical Center
Institut de Genetique et de Biologie Moleculaire et Cellulaire, Illkirch, France

P21-Activated Kinases (PAKS) Mediate Rapid Non-Classical Estradiol (E₂) Negative Feedback Actions in the Hypothalamus (Poster #7)

Z. Zhao, C. Park, M.A. McDevitt, M. Jimenez, M. Acosta-Martinez, J. Weiss, J.L. Jameson, J.E. Levine
Northwestern University (Johns Hopkins University SCCPIR)

Regulation of KISS1 and DYN Gene Expression via Classical versus Non-Classical Estrogen Receptor-Alpha Pathways (Poster #8)

M.L. Gottsch, Z. Zhou, C. Glidewell-Kenney, J. Weiss, J.L. Jameson, J.E. Levine, D.K. Clifton, R.A. Steiner
University of Washington
Northwestern University (Johns Hopkins University SCCPIR)

First Evidence of a Founder Effect in a Gene Associated with Human GnRH Deficiency (Poster #9)

M. Avbelj, R. Quinton, C. Martin, L. Plummer, M. Au, J. Florez, L. Cole, T. Cheetham, S.H. Pearce, R. Purushothaman, S. Ten, E. Jacobson-Dickman, W.R. Crowley, Jr., N. Pitteloud
Massachusetts General Hospital, Harvard Medical School
Institute for Human Genetics and Department of Pediatrics, Newcastle upon Tyne, United Kingdom
Broad Institute of Harvard and MIT
SUNY Downstate Medical Center

Hyperandrogenemia in Obese Peripubertal Girls: Correlates and Potential Etiological Determinants (Poster #10)

K.L. Knudsen, C.M. Burt Solorzano, S.K. Bland, J.C. Marshall, C.R. McCartney
University of Virginia

Ovary

ERK1/2 in Ovarian Granulosa Cells are Essential for Female Fertility (Poster #11)

H-Y. Fan, Z. Liu, J.S. Richards
Baylor College of Medicine

Morphometric Analysis of the Primate Follicle Pool is Enhanced by Use of Bromodeoxyuridine as a Marker for Proliferation of Granulosa Cells (Poster #12)

E.A. McGee, M. Clemmer, A.J. Zeleznik
Virginia Commonwealth University (University of Pittsburgh SCCPIR)
University of Pittsburgh

Expression of the Inhibin α Subunit Gene and its Regulatory Factors in Cultured Human Granulosa-Lutein Cells (Poster #13)

K.M. Meldi, I. Radhakrishnan, J.S. Rinehart, K.E. Mayo
Northwestern University
The IVF Institute-Chicago

The LIM Domain Protein FHL2 Integrates CREB and Nuclear Receptor NR5A Regulation of Inhibin Gene Expression in Ovarian Granulosa Cells (Poster #14)
C.K. Matulis, I. Radhakrishnan, K.E. Mayo
Northwestern University

Structural Studies of Transcription Factor Interactions at the Inhibin- α Promoter (Poster #15)
S. Kumar, A. Talai, J. Concha, K. Meldi, C. Matulis, K. Mayo, I. Radhakrishnan
Northwestern University

Endometrium

Stromal Progesterone Receptors Mediate Induction of Indian Hedgehog (IHH) in Uterine Epithelium and its Downstream Targets in Uterine Stroma (Poster #16)
L. Simon, K.A. Spiewak, G.C. Ekman, J. Kim, J.P. Lydon, M.K. Bagchi, I.C. Bagchi, F.J. DeMayo, P.S. Cooke
University of Illinois at Urbana-Champaign
Baylor College of Medicine

WNT4 is Critical for the Regulation of the Differentiation of the Uterine Epithelium in Response to Estrogen and Uterine Function (Poster #17)
H.L. Franco, J-W. Jeong, D. Dai, D. Roop D. Boerboom, J.S. Richards, S.Y. Tsai, J.P. Lydon, I.C. Bagchi, M.K. Bagchi, F.J. DeMayo
Baylor College of Medicine
University of Colorado
University of Montreal
University of Illinois at Urbana-Champaign

Regulation of Extracellular Matrix Metalloproteinase Inducer (EMMPRIN) Secretion by Human Uterine Epithelial Cell (Poster #18)
P. Mehrotra, J.L. Jeffries, R.A. Nowak
University of Illinois at Urbana-Champaign

Regulation of Epithelial to Mesenchymal Transition (EMT) in LP-9 Mesothelial Cells (Poster #19)
F. Masoud, R.A. Nowak
University of Illinois at Urbana-Champaign

Reduced Uterine Natural Killer Cells in Eutopic Endometrium from Women with Endometriosis (Poster #20)
R.H. McIntire, L. Aghajanova, L.C. Giudice
University of California, San Francisco

Alterations in the Calcitonin and Calcitonin-Modulated Proteins, E-Cadherin and the Enzyme Tissue Transglutaminase II During the Window of Implantation in a Baboon Model of Endometriosis (Poster #21)
K.S. Jackson, J.M. Hastings, P.A. Mavroganis, I. Bagchi, A.R. Fazleabas
University of Chicago
University of Illinois at Urbana-Champaign

ER β Regulates ER α Expression in Endometrial and Endometriotic Stromal Cells via Binding to Specific DNA Motifs (Poster #22)

E. Trukhacheva, Z. Lin, S. Reierstad, Y-H. Cheng, M. Milad, S.E. Bulun
Northwestern University (University of Illinois at Chicago SCCPIR)

Retinoids, but Not Progesterone, Directly Induce Differentiation and Apoptosis of Endometrial Cancer Cells In Vitro (Poster #23)

Y-H. Cheng, S.E. Bulun
Northwestern University (University of Illinois at Chicago SCCPIR)

Pancreatic Beta Cell Transdifferentiation of Human Endometrial Derived Stem Cells (Poster #24)

E.F. Wolff, K.V. Yao, H.S. Taylor
Yale University School of Medicine

Multifunctional Signaling Dynamics of HBEGF in Trophoblasts (Poster #25)

P. Jessmon, B. Kilburn, R. Romero, D. R. Armant, R. Leach
Michigan State University (University of Illinois at Chicago SCCPIR)
Wayne State University
Eunice Kennedy Shriver National Institute of Child Health and Human Development

Male Reproduction

Reorganization of the Sertoli Cell Tight Junctions During Spermatocyte Migration Across the Blood-Testis Barrier (Poster #26)

B. Smith, R.E. Braun
University of Washington
The Jackson Laboratory (University of Washington SCCPIR)

Androgen Receptor Gene Transcription in Sertoli Cells (Poster #27)

J. Grzadziel, D. Davis, J. Omwancha, T.R. Brown
Johns Hopkins Bloomberg School of Public Health

Three-Dimensional Culture Systems to Study Testicular Germ Cell Proliferation and Differentiation in the Rhesus Monkey (Macaca Mulatta) (Poster #28)

M. Huleihel, B.P. Hermann, D.R. Simorangkir, S. Ramaswamy, T.M. Plant
University of Pittsburgh School of Medicine
Magee-Women's Research Institute
Ben-Gurion University, Beer-Sheva, Israel

Substrate-Dependent Changes During Sperm Capacitation are not Directly Related to ATP Levels (Poster #29)

S.G. Goodson, D.A. O'Brien
University of North Carolina

Analysis of Gene Expression Profiles in HeLa Cells in Response to Overexpression or siRNA-Mediated Depletion of NASP (Poster #30)

O.M. Alekseev, R.T. Richardson, O. Alekseev, M.G. O'Rand
University of North Carolina

Direct Measurement of Intra-Testicular Hormones Using Testicular Aspiration in Normal Men (Poster #31)

M.Y. Roth, K. Lin, J.K. Amory, T.F. Kalthorn, W.J. Bremner, S.T. Page
University of Washington

Resources

Validation of the Beckman-Coulter DSL Human Anti-Mullerian Hormone Assay for the Mouse and Rat (Poster #32)

D. Haiseneder, A. Schoenfelder, E. Marcinko
University of Virginia

The Mammalian Reproductive Genetics Database (Poster #33)

C.M. Connolly, R.E. Braun (Poster #33)
University of Washington

The Jackson Laboratory (University of Washington SCCPIR)

A Wiki for GnRH Biology (Poster #34)

N. Bahr, C. Dubay, S. Ojeda
Oregon National Primate Research Center, Oregon Health & Science University

8:00 **Dinner Banquet (site to be determined)**

Tuesday, May 12 Buckingham Room

Session V. Molecular Regulation of Reproduction (Chairs: Teresa Woodruff, Bert O'Malley)

8:00 – 8:20a *The Transcription Factor C/EBP β Controls Endometrial Stromal Differentiation and Remodeling During Implantation by Promoting the Formation of a Unique Extracellular Matrix*

C. Ramathal, W. Wang, I.C. Bagchi, M.K. Bagchi
University of Illinois at Urbana-Champaign

8:20 – 8:40 *ICI 182,780, A Pure ER α Antagonist, Partially Rescued the Implantation and Decidualization Defects in Uterine Specific Coup-TFII Deficient Mice*

D-K. Lee, I. Kurihara, F.J. DeMayo, M-J. Tsai, S.Y. Tsai
Baylor College of Medicine

8:40 – 9:00 *The Nuclear Receptor Coregulator, REA, is Essential for Normal Uterine Function and Successful Maintenance of Early Pregnancy*

S. Park, S. Yoon, C. Ramathal, L. Liao, Z. Liu, J. Xu, J.P. Lydon, F. J. DeMayo, B. O'Malley, M.K. Bagchi, B.S. Katzenellenbogen
University of Illinois at Urbana-Champaign
Baylor College of Medicine

9:00 – 9:20 *Insights into Transcription Factor Interactions with Coactivators and DNA from Structural and Functional Studies of Inhibin Gene Expression in Ovarian Granulosa Cells*
K.E. Mayo, C. Matulis, K. Meldi, G.S. Kumar, J. Concha, A. Talai, I. Radhakrishnan
Northwestern University

Session VI. Endometriosis – Treatment Strategies (Chairs: Linda Giudice, Hugh Taylor)

9:20 – 9:40 *Effects of Statins on Endometrium and Endometriosis*
K. Tran, K. Osteen, A.J. Duleba
Vanderbilt University (Yale University SCCPIR)
University of California, Davis (Yale University SCCPIR)

9:40 – 10:00 *ICON Abolishes Endometriotic Lesions without Compromising Fertility*
G. Krikun, Z. Hu, K. Osteen, K. Tran, H. Taylor, F. Schatz, C.J. Lockwood
Yale University
Vanderbilt University (Yale University SCCPIR)

10:00 – 10:20 **Break (Room)**

Session VII. Endometriosis – Cellular Mediators (Chairs: Linda Giudice, Hugh Taylor)

10:20 – 10:40 *Increased MAPK Activity Reduces cAMP-Dependent Inhibition of Cyclin D1 Expression in Endometrial Stromal Cells of Women with Endometriosis*
M.C. Velarde, L. Aghajanova, L.C. Giudice
University of California, San Francisco

10:40 – 11:00 *Resistance to Apoptosis in Endometriosis May be Caused by a Decreased CRABP1/FABP5 Ratio*
M.E. Pavone, S. Reierstad, E. Pearson, Y-H. Cheng, S.E. Bulun
Northwestern University (University of Illinois at Chicago SCCPIR)

11:00 – 11:20 *Differential Gene Expression Upon Activation of PKA Pathway in Endometrial Stromal Fibroblasts from Women With and Without Endometriosis*
L. Aghajanova, J.A. Horcajadas, F.J. Esteban, L.C. Giudice
University of California, San Francisco

11:20 – 11:40 *MicroRNAs in Uterine Function and Dysfunction*
S. Hawkins, C. Creighton, C. Andreu-Vieyra, D. Han, H. Zhu, J. Agno, J. Jeong, F. DeMayo, P. Gunaratne, M.M Matzuk
Baylor College of Medicine

11:40 – Noon *Endometriosis Alters the Peripheral Expression of Regulatory T Cells in a Non-Human Primate*
A. Braundmeier, K. Jackson, J. Hastings, A. Fazleabas
University of Illinois at Chicago

Noon – 1:00p **Lunch**

1:00 – 1:30 **Reports from Research Focus Group Leaders**

Session VIII. Kisspeptin/GPR54 (Chairs: Pam Mellon, Tony Plant)

- 1:30 – 1:50 *Circadian Regulation of Hypothalamic KISS1 Neurons and Plasma Gonadotropin Levels in Female Mice Housed in Constant Darkness: Implications for Timing of the Preovulatory LH Surge*
A.S. Kaufmann, J.L. Robertson, D.K. Clifton, H. de la Iglesia, R.A. Steiner
University of California, San Diego
University of Washington
- 1:50 – 2:10 *Reproductive Hormone-Dependent and –Independent Influences on Pubertal KISS1 Gene Expression in GnRH-Deficient Hypogonadal (HPG) Mice*
J.C. Gill, O. Wang, Y-M. Chan, S.B. Seminara, J.A. Majzoub, U.B. Kaiser
Brigham and Women’s Hospital, Harvard Medical School
Children’s Hospital Boston
Massachusetts General Hospital
- 2:10 – 2:30 *The Control of GnRH Secretion by KISS1/Dynorphin/NKB Neurons in the Arcuate Nucleus*
V. Navarro, D.K. Clifton, R.A. Steiner
University of Washington
- 2:30 – 2:50 *Kisspeptin/GPR54-Independent GnRH Secretion: Evidence from KISS1^{-/-} and GPR54^{-/-} Mutant Mice*
Y-M. Chan, S. Broder-Fingert, S.B. Seminara
Massachusetts General Hospital, Harvard Medical School
Children’s Hospital Boston
- 2:50 – 3:00 Closing Remarks
- 3:00 **Adjourn**