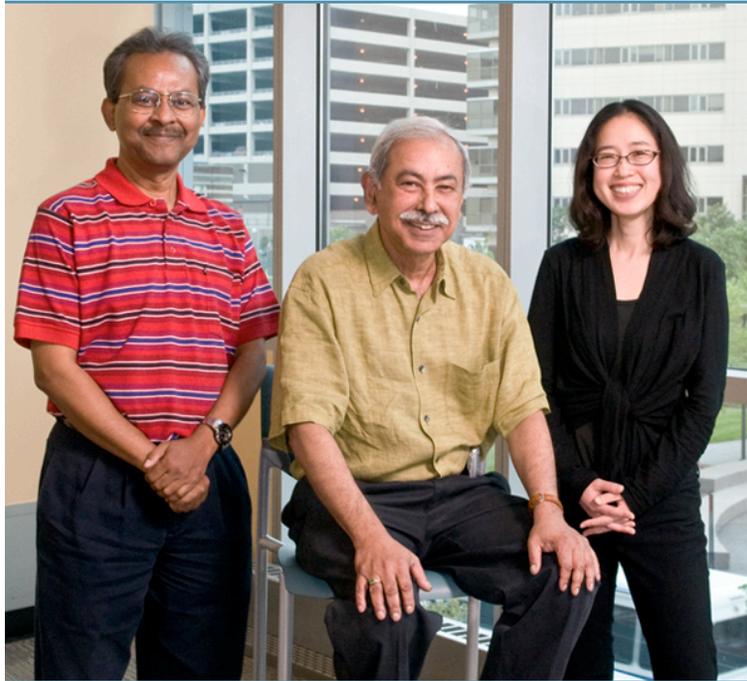


Division Photo



Left to Right: Sanjoy Das, SK Dey, Takiko Daikoku

Division Data Summary

Research and Training Details

Number of Faculty	3
Number of Joint Appointment Faculty	1
Number of Research Fellows	6
Number of Research Students	3
Number of Support Personnel	6
Direct Annual Grant Support	\$1,768,483
Peer Reviewed Publications	15

Significant Publications

Burnum, K. E., Tranguch, S., Mi, D., Daikoku, T., Dey, S. K. and R. M. Caprioli. (2008). "Imaging mass spectrometry reveals unique protein profiles during embryo implantation." Endocrinology 149(7): 3274-8.

This was the first demonstration of in situ, implant-specific proteome localization by mass spectrometry application.

Daikoku, T., Hirota, Y., Tranguch, S., Joshi, A. R., DeMayo, F. J., Lydon, J. P., Ellenson, L. H., and S. K. Dey. (2008). "Conditional loss of uterine Pten unfaithfully and rapidly induces endometrial cancer in mice." (14): 5619-27.

This reported on the first mouse model with spontaneous generation of endometrial cancer with 100% penetrance shortly after birth.

Hirota, Y., Tranguch, S., Daikoku, T., Hasegawa, A., Osuga, Y., Taketani, Y., and S. K. Dey. (2008). "Deficiency of immunophilin FKBP52 promotes endometriosis." *Am J Pathol*173(6): 1747-57.

This was the first demonstration of an immunophilin cochaperone triggering endometriotic lesions in the uterus.

Sun, X., Wang, H., Okabe, M., Mackie, K., Kingsley, P. J., Marnett, L. J., Cravatt, B. F. and S. K. Dey.(2009). "Genetic loss of Faah compromises male fertility in mice." *Biol Reprod*80(2): 235-42.

This reported on the first evidence, using genetic approaches, that endocannabinoid signaling plays a key role fertilization.

Wang, H., Xie, H. and S. K.Dey. (2008). "Loss of cannabinoid receptor CB1 induces preterm birth." *PLoS One* 3(10): e3320.

This reported on the first evidence of a cannabinoid receptor directly impacting parturition.

Division Highlights

Dr. S. K. Dey

Dr. Dey served as the organizer for the 2009 Keystone Symposia on "Frontiers in Reproductive Biology and Regulation of Fertility." The symposia, which was held February 1-6, 2009, had over 100 participants from a dozen countries.

Dr. S. K. Dey

Dr. S. K. Dey was awarded the 2009 International IVI Foundation Schering-Plough Award. The award is given to the scientist with "The Best Clinical Research Record in Reproduction Medicine," based on the impact factor of publications in the past five years.

Dr. S. K. Dey

Dr. S. K. Dey was selected to be the issue editor of the Reproductive Biology issue of the Journal of Clinical Investigation.

Division Collaboration

Collaboration with Perinatal Institute

Collaborating Faculty:

Dr. S. K. Dey serves as a member of the Scientific Advisory Board of the Perinatal Institute.

Collaboration with Developmental Biology

Collaborating Faculty: Dr. Jeffrey Whitsett

Examining preterm birth and prematurity.

Collaboration with Endocrinology

Collaborating Faculty: Dr. Stuart Handwerger

Examining uterine decidualization and placentation.

Faculty Members

Sudhansu K. Dey, PhD, Professor ; *Division Director*

Takiko Daikoku, PhD, Research Assistant Professor

Sanjoy Das, PhD, Associate Professor

Joint Appointment Faculty Members

Jade Lim, Ph.D., Adjunct Assistant Professor
Konkuk University
Embryo Implantation

Trainees

- **Nuray Acar, M.S.**, Akdeniz University, Antalya, Turkey

- **Jeeyeon Cha, B.S.**, University of Cincinnati, Medical School
- **Daesuk Chung, Ph.D.**, University of Colorado
- **Hidetoshi Fujita, Ph.D.**, University of Tsukuba, Tsukuba, Japan
- **Tomoko Fujita, Ph.D.**, University of Tsukuba, Tsukuba, Japan
- **Fei Gao, Ph.D.**, Vanderbilt University
- **Yasushi Hirota, MD/Ph.D.**, University of Tokyo, Tokyo, Japan
- **Xiaofei Sun, B.S.**, Vanderbilt University
- **Huirong Xie, Ph.D.**, Vanderbilt University

Significant Accomplishments

Lab Establishment and Faculty Recruitment

The Division of Reproductive Sciences was established at CCHMC this year and we have already successfully recruited our first faculty member, Dr. Satoshi Namekawa, who will join us from Harvard University.

Faculty Received New Grant Funding

Dr. Sanjoy Das has received funding from the NICHD for his R01 grant entitled "Molecular Signaling in Decidualization." The project will seek to define potential roles of key cell cycle regulators in uterine biology during implantation and decidualization.

Dr. Takiko Daikoku has received funding for two grants this year. The Concern Foundation renewed her grant seeking to characterize a uterine specific Pten/p53 deleted mouse model for endometrial cancer. Dr. Daikoku also received funding from Cancer Research Associates, Ohio for a project seeking to determine the roles of Cox2 in a mouse model for endometrial cancer.

Establishment of International Training Program

The Division began fostering an international training program, recruiting three young scientists. Yasushi Hirota, MD/PhD, and Hidetoshi Fujita, Ph.D. are both being sponsored by the Japanese Society for the Promotion of Science to work as research fellows. In February of 2009, Dr. Hirota became the youngest ever recipient of the Japan Society of Obstetrics and Gynecology Research Award.

Nuray Acar is being sponsored by TUBITAK (the Scientific and Technological Research Council of Turkey) to spend one year at CCHMC completing work for her Ph.D. thesis.

Division Publications

1. Sun X, Wang H, Okabe M, Mackie K, Kingsley PJ, Marnett LJ, Cravatt BF, Dey SK. [Genetic loss of Faah compromises male fertility in mice](#). *Biol Reprod*. 2009; 80: 235-42.
2. Lim HJ, Dey SK. [HB-EGF: a unique mediator of embryo-uterine interactions during implantation](#). *Exp Cell Res*. 2009; 315: 619-26.
3. Zhuge Y, Lagman JA, Ansenberger K, Mahon CJ, Daikoku T, Dey SK, Bahr JM, Hales DB. [CYP1B1 expression in ovarian cancer in the laying hen Gallusdomesticus](#). *Gynecol Oncol*. 2009; 112: 171-8.
4. Das SK. [Cell cycle regulatory control for uterine stromal cell decidualization in implantation](#). *Reproduction*. 2009; 137: 889-99.
5. Daling JR, Doody DR, Sun X, Trabert BL, Weiss NS, Chen C, Biggs ML, Starr JR, Dey SK, Schwartz SM. [Association of marijuana use and the incidence of testicular germ cell tumors](#). *Cancer*. 2009; 115: 1215-23.
6. Horne AW, Phillips JA, 3rd, Kane N, Lourenco PC, McDonald SE, Williams AR, Simon C, Dey SK, Critchley HO. [CB1 expression is attenuated in Fallopian tube and decidua of women with ectopic pregnancy](#). *PLoS One*. 2008; 3: e3969.
7. Wang H, Xie H, Dey SK. [Loss of cannabinoid receptor CB1 induces preterm birth](#). *PLoS One*. 2008; 3: e3320.
8. Wang D, Wang H, Ning W, Backlund MG, Dey SK, DuBois RN. [Loss of cannabinoid receptor 1 accelerates intestinal tumor growth](#). *Cancer Res*. 2008; 68: 6468-76.
9. Hirota Y, Tranguch S, Daikoku T, Hasegawa A, Osuga Y, Taketani Y, Dey SK. [Deficiency of immunophilin FKBP52 promotes endometriosis](#). *Am J Pathol*. 2008; 173: 1747-57.
10. Burnum KE, Tranguch S, Mi D, Daikoku T, Dey SK, Caprioli RM. [Imaging mass spectrometry reveals unique protein profiles during embryo implantation](#). *Endocrinology*. 2008; 149: 3274-8.

11. Daikoku T, Hirota Y, Tranguch S, Joshi AR, DeMayo FJ, Lydon JP, Ellenson LH, Dey SK. [Conditional loss of uterine Pten unfailingly and rapidly induces endometrial cancer in mice](#). *Cancer Res.* 2008; 68: 5619-27.
12. Daikoku T, Dey SK. [Two faces of PTEN](#). *Nat Med.* 2008; 14: 1192-3.
13. Von Stetina JR, Tranguch S, Dey SK, Lee LA, Cha B, Drummond-Barbosa D. [alpha-Endosulfine is a conserved protein required for oocyte meiotic maturation in Drosophila](#). *Development.* 2008; 135: 3697-706.
14. Backlund MG, Mann JR, Holla VR, Shi Q, Daikoku T, Dey SK, DuBois RN. [Repression of 15-hydroxyprostaglandin dehydrogenase involves histone deacetylase 2 and snail in colorectal cancer](#). *Cancer Res.* 2008; 68: 9331-7.
15. Brown AJ, Alicknavitch M, D'Souza SS, Daikoku T, Kirn-Safran CB, Marchetti D, Carson DD, Farach-Carson MC. [Heparanase expression and activity influences chondrogenic and osteogenic processes during endochondral bone formation](#). *Bone.* 2008; 43: 689-99.

Grants, Contracts, and Industry Agreements

Grant and Contract Awards

Annual Direct / Project Period Direct

DAIKOKU, T

A Novel Mouse Model of Endometrial-Specific Cancer

Concern Foundation

07/01/08 - 06/30/09

\$50,000 / \$50,000

DAS, S

Environmental Toxins and Uterine Gene Expression

National Institutes of Health

R01 ES 007814

09/15/08 - 05/31/13

\$225,000 / \$1,125,000

DEY, S

Endocannabinoid Signaling During Early Pregnancy

National Institutes of Health

R37 DA 006668

08/01/08 - 12/31/12

\$686,045 / \$1,412,211

Aspects of Blastocyst Implantation

National Institutes of Health

R37 HD 012304

07/16/08 - 08/31/09

\$525,119 / \$525,119

Mechanisms for Chemoprevention of Cancer

National Institutes of Health (Vanderbilt University)

P01 CA 077839

07/15/08 - 04/30/09

\$282,319 / \$282,319

Current Year Direct

1,768,483

Total 1,768,483