



Professor Evan Simpson

BSc (Hons), PhD

Email: evan.simpson@princehenrys.org

Position

Head, Sex Hormone Biology, Prince Henry's Institute
Laboratory Director, Victorian Breast Cancer Research Consortium
Honorary Professor in Biochemistry, Monash University

Awards

The President's Scientific Achievement Award, Society for Gynecologic Investigation (USA)
Transatlantic Lecturer Medal, Society for Endocrinology (UK)
Annual Johns-Hopkins-Maryland Lectureship in Reproductive Biology
Medaglia Celebrativa della Citta di Palermo – Sicily, Italy
Earl Plunkett Lecturer, University of Western Ontario, London, Ontario, Canada
Society for Endocrinology (UK) Asia and Oceania Medal
On the Thomson ISI Highly Cited List (only one of three Australian scientists in the Biology/Biochemistry field).
Roy O Greep Award Lecture, Endocrine Society (US)

Research areas

Breast cancer, aromatase gene expression, estrogen and osteoporosis

Selected publications

1. Corbin CJ, S Graham-Lorence, M McPhaul, JI Mason, CR Mendelson, and **ER Simpson**: Isolation of a full-length cDNA insert encoding human aromatase system cytochrome P450 and its expression in nonsteroidogenic cells. *Proc Natl Acad Sci USA* 85:8948-8952 (1988).
2. Means GD, M Mahendroo, CJ Corbin, JM Mathis, FE Powell, CR Mendelson, and **ER Simpson**: Structural analysis of the gene encoding human aromatase cytochrome P450, the enzyme responsible for estrogen biosynthesis. *J Biol Chem* 264:19385-19391 (1989).
3. Mahendroo MS, GD Means, CR Mendelson, and **ER Simpson**: Tissue-specific expression of human P450arom: the promoter responsible for expression in adipose tissue is different from that utilized in placenta. *J Biol Chem* 266:11276-11281 (1991).
4. Means GD, MW Kilgore, MS Mahendroo, CR Mendelson, and **ER Simpson**: Tissue-specific promoters regulate aromatase cytochrome P450 gene expression in human ovary and fetal tissues. *Mol Endo* 5:2005-2013 (1991).
5. Mahendroo MS, CR Mendelson and **ER Simpson**: Tissue-specific and hormonally-controlled alternative promoters regulate aromatase cytochrome P450 gene expression in human adipose tissue. *J Biol Chem* 268:19463-19470 (1993).
6. Ito Y, CR Fisher, FA Conte, MM Grumbach, and **ER Simpson**: The molecular basis of aromatase deficiency in an adult female with sexual infantilism and polycystic ovaries. *Proc Natl Acad Sci USA* 90:11673-11677 (1993).
7. Michael MD, MW Kilgore, K-I Morohashi and **ER Simpson**: Ad4BP/SF-1 regulates cyclic AMP-induced transcription from the proximal promoter (PII) of the human aromatase P450 (CYP19) gene in the ovary. *J Biol Chem* 270:13561-13566 (1995).
8. Zhao Y, Nichols JE, Bulun SE, Mendelson CR and **Simpson ER**: Aromatase P450 gene expression in human adipose tissue: role of a Jak/STAT pathway in regulation of the adipose-specific promoter. *J Biol Chem* 270:16449-16457 (1995).
9. Agarwal VR, SE Bulun, and **ER Simpson**: Use of alternative promoters to express the aromatase cytochrome P450 (CYP19) gene in neoplastic and non-neoplastic adipose tissues of breast cancer patients. *J. Clin. Endocrinol. Metab.* 81: 3843-3849 (1996).

10. Zhao Y, JE Nichols, R Valdez, CR Mendelson, and **ER Simpson**. TNF α stimulates aromatase gene expression in human adipose stromal cells (ASC) through use of an AP-1 binding site upstream of promoter I.4. *Mol. Endocrinol.* 10: 1350-1357 (1996).
11. Zhao Y, VR Agarwal, CR Mendelson and **ER Simpson**. Estrogen biosynthesis proximal to a breast tumor is stimulated by PGE₂ via cAMP, leading to activation of promoter II of the *CYP19* (aromatase) gene. *Endocrinology* 137: 5739-5742 (1996).
12. Carani, C, Q Qin, M Simoni, M Faustini-Fustini, S Serpente, KS Korach and **ER Simpson**. Effect of testosterone and estradiol in a man with aromatase deficiency. *N. Engl. J. Medicine* 337:91-95 (1997).
13. Fisher CR, KH Graves, AS Parlow and **ER Simpson**. Characterization of mice deficient in aromatase (ArKO) due to targeted disruption of the *cyp19* gene. *Proc Natl Acad Sci USA* 95:6965-6970 (1998).
14. Robertson KM, L O'Donnell, MEE Jones, SJ Meachem, W-C Boon, CR Fisher, KH Graves, RI McLachlan, **ER Simpson** Impairment of spermatogenesis in mice lacking the aromatase (*cyp 19*) gene (ArKO). *Proc. Natl. Acad. Sci USA* 96:7986-7991 (1999)
15. Rubin GL, Y Zhao, AM Kalus and **ER Simpson** Peroxisome Proliferator-activated Receptor γ ligands inhibit estrogen biosynthesis in human breast adipose tissue: Possible implications for breast cancer therapy. *Cancer Research* 60:1604-1608 2000
16. Oz OK, JE Zerwekh, C Fisher, K Graves, L Nanu, R Millsaps, **ER Simpson**. Bone has a sexually dimorphic response to aromatase deficiency. *J Bone Miner Res* 15:507-514 2000
17. Jones MEE, AW Thorburn, KL Britt, KN Hewitt, NG Wreford, J Proietto, OK Oz, BJ Leury, KM Robertson, S Yao **ER Simpson**. Aromatase-deficient (ArKO) mice have a phenotype of increased adiposity. *Proc Natl Acad Sci USA* 97:12735-12740, 2000
18. Clyne CD, Speed CJ, Zhou J, **Simpson ER**. Liver receptor homologue-1 (LRH-1) regulates expression of aromatase in preadipocytes. *J Biol Chem* 277:20591-20597, 2002
19. Britt KL, Kerr J, O'Donnell L, Jones MEE, Drummond AE, Davis SR, **Simpson ER**, Findlay JK. Estrogen regulates development of the somatic cell phenotype in the eutherian ovary. *FASEB J* 16:1389-1397, 2002
20. Misso ML, Murata Y, Boon WC, Jones ME, Britt KL, **Simpson ER**. Cellular and molecular characterization of the adipose phenotype of the aromatase-deficient mouse. *Endocrinology*. 144:1414-1480, (2003)
21. Hewitt KN, Pratis K, Jones ME, **Simpson ER**. Estrogen replacement reverses the hepatic steatosis phenotype in the male aromatase knockout mouse. *Endocrinology* 145:1842-1848 (2004)
22. Hill RA, Pompolo S, Jones MEE, **Simpson ER**, Boon WC. Estrogen deficiency leads to apoptosis in dopaminergic neurons in the medial pre-optic area and arcuate nucleus of male mice. *Mol Cell Neurosci.* Dec;27(4):466-76 (2004)
23. Shim GJ, Warner M, Kim HJ, Andersson S, Liu L, Ekman J, Imamov O, Jones ME, **Simpson ER**, Gustafsson JA. Aromatase-deficient mice spontaneously develop a lymphoproliferative autoimmune disease resembling Sjogren's syndrome. *Proc Natl Acad Sci U S A.* 2004 Aug 24;101(34):12628-33.
24. Zhou J, Suzuki T, Kovacic A, Saito R, Miki Y, Ishida T, Moriya T, **Simpson ER**, Sasano H, Clyne CD. Interactions between prostaglandin E(2), liver receptor homologue-1, and aromatase in breast cancer. *Cancer Res.* 2005 Jan 15;65(2):657-63.
25. **Simpson ER**, Misso M, Hewitt KN, Hill RA, Boon WC, Jones ME, Kovacic A, Zhou J, Clyne CD. Estrogen- the Good, the Bad, and the Unexpected. *Endocr Rev.* 2005 Apr 28; [Epub ahead of print]