



Professor Bon-chu Chung is a Distinguished Research Fellow at the Institute of Molecular Biology, Academia Sinica. Dr. Chung's research area is in the studies of steroid functions and regulation using techniques in molecular, cellular, and developmental biology. She has delineated the mechanisms that control the synthesis of steroids in different species including human, mouse, and zebrafish. Her group also uncovered the function of steroids in promoting zebrafish embryonic cell migration. Currently her lab is working on the functions and regulation of steroidogenesis in the gonads and brain. Her work has won her Outstanding Women in Science Award (2012), Outstanding Research Award from National Science Council (1989-2003) as well as Academy Award from Department of Education, Taiwan (2006), and a membership from the Asia International Molecular Biology Organization (1998). Dr. Chung was Director General in the Department of Life Sciences of National Science Council, Taiwan, in 2005-2007, Deputy Director at the Institute of Molecular Biology (1997-1999, 2011-2013), Deputy Executive Secretary (1999-2001) and Executive Secretary (2002-2004) of the Central Academic Advisory Committee of Academia Sinica. She received her PhD from the Graduate Department of Biochemistry, University of Pennsylvania, USA, and BS from the Department of Chemistry, National Taiwan University.

Representative Publications (selected from ~100 papers):

1. Wu D-A, Chung B-c, "Mutations of P450c21 (steroid 21-hydroxylase) at Cys428, Val281, and Ser268 result in complete, partial, or no loss of enzymatic activity respectively." *J. Clin. Invest.* 88, 519-523 (1991).
2. Chiang EF-L, Tong S-K, Yan Y-L, Hsiao P-H, Guiguen Y, Postlethwait J, Chung B-c, "Two *Cyp19* (P450 aromatase) genes on duplicated zebrafish chromosomes are expressed in ovary or brain." *Mol. Biol. Evol.* 18, 542-550 (2001).
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4. Hsu H-J, Lin G, Chung B-c, "Parallel Early Development of Zebrafish Interrenal and Pronephro: Differential Control by *wtl* and *ff1b*" [Development, 130, 2107-2116 \(2003\).](#)
5. Chen W-Y, Lee W-C, Hsu N-C, Huang F, and Chung B-c, "SUMO modification of repression domains modulates function of nuclear receptor 5A1 (steroidogenic factor-1)" [J. Biol. Chem. 279, 38730-38735 \(2004\).](#)
6. Chen W-Y, Juan L-J, and Chung B-c, "Acetylation of Ftz-F1 Box Regulates the Transcriptional Activity of nuclear receptor 5A1 (steroidogenic factor-1)" *Mol. Cell. Biol.* 25, 10442-10435 (2005).
7. Hsu H-J, Liang M-R, Chen C-T, and Chung B-c, "Pregnenolone stabilizes microtubules and promotes zebrafish embryonic cell movement" *Nature* 439, 480-483 (2006).
8. Lan H-C, Li H-J, Lin G, Lai P-Y, Chung B-c, "Cyclic AMP Stimulates SF-1-Dependent CYP11A1 Expression through Homeodomain-Interacting Protein Kinase 3-Mediated Jun N-Terminal Kinase and c-Jun Phosphorylation" *Mol. Cell. Biol.* 27, 2027-2036 (2007).
9. Chen W-Y, Weng J-H, Huang, C-C, Chung B-c, "Histone deacetylase inhibitors reduce steroidogenesis through SCF-mediated ubiquitination and degradation of Steroidogenic Factor 1 (NR5A1)" *Mol. Cell. Biol.* 27, 7284-7290 (2007).
10. Shih M-C, Hsu N-C, Huang C-C, Wu T-S, Lai P-Y and Chung B-c, "Mutation of mouse *Cyp11a1* promoter caused tissue-specific reduction of gene expression and blunted stress response without affecting reproduction" *Mol. Endocrinol.* 22, 915-923 (2008).
11. Tong S-K, Hsu H-J, Chung B-c, "Zebrafish monosex population reveals female dominance in sex determination and earliest events of gonad differentiation", *Dev Biol*, 344 (2), 849-856 (2010).
12. Lai P-Y, Wang C-Y, Chen W-Y, Kao Y-H, Tsai H-M, Tachibana T, Chung B-c, "Steroidogenic Factor 1 (NR5A1) resides in centrosomes and maintains genomic stability by controlling centrosome homeostasis" *Cell Death Diff* 18, 1836-1844, (2011).
13. Huang C-C J, Shih M-C M, Hsu N-C, Chung B-c, "Local Glucocorticoid Synthesis is Required for Development of Fetal Adrenal Medulla and Hypothalamus Feedback Suppression", *Endocrinology*, 153, 4749-4756 (2012).
14. Lan H-S, Wu C-F, Shih H-M, and Chung B-c, "Death-Associated Protein 6 (Daxx) Mediates cAMP-Dependent Stimulation of *Cyp11a1* (*P450scc*) Transcription" *J Biol Chem* 287, 5910-5916 (2012).

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16. Weng J-H, Liang M-R, Chen C-H, Tong S-K, Huang T-C, Lee S-P, Chen Y-R, Chen C-T, and Chung B-c, “Pregnenolone activates CLIP-170 to promote microtubule growth and cell migration” *Nature Chem Biol*, 9, [636-642](#) (2013). (cover)
17. Yu C, Cheng W-C, Wu M-R, Jiang S-T, Shen C-KJ, Chung B-c, “Mis-regulated Progesterone Secretion and Impaired Pregnancy in Cyp11a1 Transgenic Mice” *Biol Reprod*, 89 (4) [91, 1-10](#) (2013).
18. Huang S-C, Lee C-t, Chung B-c, “Tumor Necrosis Factor Suppresses NR5A2 Activity and Intestinal Glucocorticoid Synthesis to Sustain Chronic Colitis” *Sci Signal*, 7 (314), [ra20, 1-11](#) (2014).
19. Wang C-Y, Lai P-Y, Chen T-Y, and Chung B-c, “NR5A1 prevents centriole splitting by inhibiting centrosomal DNA-PK activation and beta-catenin accumulation” *Cell Commun Signal*, 12:55-64 (2014).
20. Wang C-Y, Huang EY-H, Huang S-C, and Chung B-c, “DNA-PK/Chk2 induces centrosome amplification during prolonged replication stress” *Oncogene*, 34: 1263-1269 (2015).
21. Vignet C, Joassard L, Lyphout L, Guionnet T, Goubeau M, Le Menach K, Brion F, Kah O, Chung B-c, Budzinski H, Bégout M-L, Cousin X, “Exposures of zebrafish through diet to three environmentally relevant mixtures of PAHs produce behavioral disruptions in unexposed F1 and F2 descendant” *Environ Sci Pollut Res*, 22:16371-83 (2015).
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23. Hasegawa Y, Hojo Y, Kojima H, Ikeda M, Hotta K, Sato R, Ooishi Y, Yoshiya M, Chung BC, Yamazaki T, Kawato S. “Estradiol rapidly modulates synaptic plasticity of hippocampal neurons: Involvement of kinase networks.” *Brain Res.* 1621:147-61 (2015).
24. Miller WL, Chung B-c, “The first defect in electron transfer to mitochondrial P450 enzymes” *Endocrinology* 157, 1003-1006 (2016)
25. Weng J-H, Chung B-c, “Nongenomic Actions of Neurosteroid Pregnenolone and its Metabolites” *STEROIDS* in press (2016)