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2F. COUP-TF-like receptors (version 2019.4) in the IUPHAR/BPS Guide to Pharmacology Database

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Abstract

COUP-TF-like receptors (**nomenclature as agreed by the NC-IUPHAR Subcommittee on Nuclear Hormone Receptors [6]**) have yet to be officially paired with an endogenous ligand.

Contents

This is a citation summary for 2F. COUP-TF-like receptors in the Guide to Pharmacology database (GtoPdb). It exists purely as an adjunct to the database to facilitate the recognition of citations to and from the database by citation analyzers. Readers will almost certainly want to visit the relevant sections of the database which are given here under database links.

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Database links

2F. COUP-TF-like receptors
http://www.guidetopharmacology.org/GRAC/FamilyDisplayForward?familyId=95
Introduction to 2F. COUP-TF-like receptors
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Receptors

- COUP-TF1
  http://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=617
- COUP-TF2
  http://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=618
- V-erbA-related gene
  http://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=619

References

1. Ahn MJ, Nason-Burchenal K, Moasser MM and Dmitrovsky E. (1995) Growth suppression of acute promyelocytic leukemia cells having increased expression of the non-rearranged alleles: RAR alpha or PML. *Oncogene* **10**: 2307-14 [PMID:7784078]
2. Alfano C, Viola L, Heng JI, Pirozzi M, Clarkson M, Flore G, De Maio A, Schedl A, Guillemot F and Studer M. (2011) COUP-TFI promotes radial migration and proper morphology of callosal projection neurons by repressing Rnd2 expression. *Development* **138**: 4685-97 [PMID:21965613]
3. Armentano M, Chou SJ, Tomassy GS, Leingärtner A, O'Leary DD and Studer M. (2007) COUP-TFI regulates the balance of cortical patterning between frontal/motor and sensory areas. *Nat. Neurosci.* **10**: 1277-86 [PMID:17828260]
4. Avram D, Fields A, Pretty On Top K, Nevrivy DJ, Ishmael JE and Leid M. (2000) Isolation of a novel family of C(2)H(2) zinc finger proteins implicated in transcriptional repression mediated by chicken ovalbumin upstream promoter transcription factor (COUP-TF) orphan nuclear receptors. *J. Biol. Chem.* **275**: 10315-22 [PMID:10744719]
5. Avram D, Ishmael JE, Nevrivy DJ, Peterson VJ, Lee SH, Dowell P and Leid M. (1999) Heterodimeric interactions between chicken ovalbumin upstream promoter-transcription factor family members ARP1 and ear2. *J. Biol. Chem.* **274**: 14331-6 [PMID:10318855]
6. Benoit G, Cooney A, Giguere V, Ingraham H, Lazar M, Muscat G, Perlmann T, Renaud JP, Schwabe J, Sladek F, Tsai MJ and Laudet V. (2006) International Union of Pharmacology. LXVI. Orphan nuclear receptors. *Pharmacol. Rev.* **58**: 798-836 [PMID:17132856]
7. Bonnardeaux A, Davies E, Jeunemaitre X, Féry I, Charru A, Clauser E, Tiret L, Cambien F, Corvol P and Soubrier F. (1994) Angiotensin II type 1 receptor gene polymorphisms in human essential hypertension. *Hypertension* **24**: 63-9 [PMID:8021009]
8. Bosch DG, Boonstra FN, Gonzaga-Jauregui C, Xu M, de Ligt J, Jhangiani S, Wiszniewski W, Muzny DM, Yntema HG and Pfundt R *et al.*. (2014) NR2F1 mutations cause optic atrophy with intellectual disability. *Am. J. Hum. Genet.* **94**: 303-9 [PMID:24462372]
9. Chan CM, Fulton J, Montiel-Duarte C, Collins HM, Bharti N, Wadelin FR, Moran PM, Mongan NP and Heery DM. (2013) A signature motif mediating selective interactions of BCL11A with the NR2E/F subfamily of orphan nuclear receptors. *Nucleic Acids Res.* **41**: 9663-79 [PMID:23975195]
10. Chen J, Cooper AD and Levy-Wilson B. (1999) Hepatocyte nuclear factor 1 binds to and transactivates the human but not the rat CYP7A1 promoter. *Biochem. Biophys. Res. Commun.* **260**: 829-34 [PMID:10403849]
11. Chu K, Boutin JM, Breton C and Zingg HH. (1998) Nuclear orphan receptors COUP-TFII and Ear-2: presence in oxytocin-producing uterine cells and functional interaction with the oxytocin gene promoter. *Mol. Cell. Endocrinol.* **137**: 145-54 [PMID:9605516]
12. Connor H, Nornes H and Neuman T. (1995) Expression screening reveals an orphan receptor chick ovalbumin upstream promoter transcription factor I as a regulator of neurite/substrate-cell contacts and cell aggregation. *J. Biol. Chem.* **270**: 15066-70 [PMID:7797489]
13. Cooney AJ, Leng X, Tsai SY, O'Malley BW and Tsai MJ. (1993) Multiple mechanisms of chicken ovalbumin upstream promoter transcription factor-dependent repression of transactivation by the vitamin D, thyroid hormone, and retinoic acid receptors. *J. Biol. Chem.* **268**: 4152-60 [PMID:8382695]
14. Cooney AJ, Tsai SY, O'Malley BW and Tsai MJ. (1992) Chicken ovalbumin upstream promoter transcription factor (COUP-TF) dimers bind to different GGTCA response elements, allowing COUP-TF to repress hormonal induction of the vitamin D3, thyroid hormone, and retinoic acid receptors. *Mol. Cell. Biol.* **12**: 4153-63 [PMID:1324415]
15. Crestani M, Sadeghpour A, Stroup D, Galli G and Chiang JY. (1998) Transcriptional activation of the cholesterol 7alpha-hydroxylase gene (CYP7A) by nuclear hormone receptors. *J. Lipid Res.* **39**: 2192-200 [PMID:9799805]
16. De Martino MU, Alesci S, Chrousos GP and Kino T. (2004) Interaction of the glucocorticoid receptor and the chicken ovalbumin upstream promoter-transcription factor II (COUP-TFII): implications for the actions

of glucocorticoids on glucose, lipoprotein, and xenobiotic metabolism. *Ann. N. Y. Acad. Sci.* **1024**: 72-85 [PMID:15265774]

17. Ge R, Rhee M, Malik S and Karathanasis SK. (1994) Transcriptional repression of apolipoprotein AI gene expression by orphan receptor ARP-1. *J. Biol. Chem.* **269**: 13185-92 [PMID:8175747]
18. Hall RK, Sladek FM and Granner DK. (1995) The orphan receptors COUP-TF and HNF-4 serve as accessory factors required for induction of phosphoenolpyruvate carboxykinase gene transcription by glucocorticoids. *Proc. Natl. Acad. Sci. U.S.A.* **92**: 412-6 [PMID:7831301]
19. Hermann-Kleiter N, Klepsch V, Wallner S, Siegmund K, Klepsch S, Tuzlak S, Villunger A, Kaminski S, Pfeifhofer-Obermair C and Gruber T *et al.*. (2015) The Nuclear Orphan Receptor NR2F6 Is a Central Checkpoint for Cancer Immune Surveillance. *Cell Rep* **12**: 2072-85 [PMID:26387951]
20. Hu S, Wilson KD, Ghosh Z, Han L, Wang Y, Lan F, Ransohoff KJ, Burridge P and Wu JC. (2013) MicroRNA-302 increases reprogramming efficiency via repression of NR2F2. *Stem Cells* **31**: 259-68 [PMID:23136034]
21. Huggins GS, Bacani CJ, Boltax J, Aikawa R and Leiden JM. (2001) Friend of GATA 2 physically interacts with chicken ovalbumin upstream promoter-TF2 (COUP-TF2) and COUP-TF3 and represses COUP-TF2-dependent activation of the atrial natriuretic factor promoter. *J. Biol. Chem.* **276**: 28029-36 [PMID:11382775]
22. Jonk LJ, de Jonge ME, Pals CE, Wissink S, Vervaart JM, Schoorlemmer J and Kruijer W. (1994) Cloning and expression during development of three murine members of the COUP family of nuclear orphan receptors. *Mech. Dev.* **47**: 81-97 [PMID:7947324]
23. Kang S, Spann NJ, Hui TY and Davis RA. (2003) ARP-1/COUP-TF II determines hepatoma phenotype by acting as both a transcriptional repressor of microsomal triglyceride transfer protein and an inducer of CYP7A1. *J. Biol. Chem.* **278**: 30478-86 [PMID:12777384]
24. Kliewer SA, Umesono K, Heyman RA, Mangelsdorf DJ, Dyck JA and Evans RM. (1992) Retinoid X receptor-COUP-TF interactions modulate retinoic acid signaling. *Proc. Natl. Acad. Sci. U.S.A.* **89**: 1448-52 [PMID:1311101]
25. Kruse SW, Suino-Powell K, Zhou XE, Kretschman JE, Reynolds R, Vonrhein C, Xu Y, Wang L, Tsai SY, Tsai MJ and Xu HE. (2008) Identification of COUP-TFII orphan nuclear receptor as a retinoic acid-activated receptor. *PLoS Biol.* **6**: e227 [PMID:18798693]
26. Ktistaki E and Talianidis I. (1997) Chicken ovalbumin upstream promoter transcription factors act as auxiliary cofactors for hepatocyte nuclear factor 4 and enhance hepatic gene expression. *Mol. Cell. Biol.* **17**: 2790-7 [PMID:9111350]
27. Kushner DB, Pereira DS, Liu X, Graham FL and Ricciardi RP. (1996) The first exon of Ad12 E1A excluding the transactivation domain mediates differential binding of COUP-TF and NF-kappa B to the MHC class I enhancer in transformed cells. *Oncogene* **12**: 143-51 [PMID:8552385]
28. Ladias JA and Karathanasis SK. (1991) Regulation of the apolipoprotein AI gene by ARP-1, a novel member of the steroid receptor superfamily. *Science* **251**: 561-5 [PMID:1899293]
29. Laursen KB, Mongan NP, Zhuang Y, Ng MM, Benoit YD and Gudas LJ. (2013) Polycomb recruitment attenuates retinoic acid-induced transcription of the bivalent NR2F1 gene. *Nucleic Acids Res.* **41**: 6430-43 [PMID:23666625]
30. Lee CT, Li L, Takamoto N, Martin JF, Demayo FJ, Tsai MJ and Tsai SY. (2004) The nuclear orphan receptor COUP-TFII is required for limb and skeletal muscle development. *Mol. Cell. Biol.* **24**: 10835-43 [PMID:15572686]
31. Lee KN, Jang WG, Kim EJ, Oh SH, Son HJ, Kim SH, Franceschi R, Zhang XK, Lee SE and Koh JT. (2012) Orphan nuclear receptor chicken ovalbumin upstream promoter-transcription factor II (COUP-TFII) protein negatively regulates bone morphogenetic protein 2-induced osteoblast differentiation through suppressing runt-related gene 2 (Runx2) activity. *J. Biol. Chem.* **287**: 18888-99 [PMID:22493443]
32. Lee S, Kang J, Yoo J, Ganesan SK, Cook SC, Aguilar B, Ramu S, Lee J and Hong YK. (2009) Prox1 physically and functionally interacts with COUP-TFII to specify lymphatic endothelial cell fate. *Blood* **113**: 1856-9 [PMID:18815287]

33. Leng X, Cooney AJ, Tsai SY and Tsai MJ. (1996) Molecular mechanisms of COUP-TF-mediated transcriptional repression: evidence for transrepression and active repression. *Mol. Cell. Biol.* **16**: 2332-40 [PMID:8628300]
34. Li L, Xie X, Qin J, Jeha GS, Saha PK, Yan J, Haueter CM, Chan L, Tsai SY and Tsai MJ. (2009) The nuclear orphan receptor COUP-TFII plays an essential role in adipogenesis, glucose homeostasis, and energy metabolism. *Cell Metab.* **9**: 77-87 [PMID:19117548]
35. Lin FJ, Chen X, Qin J, Hong YK, Tsai MJ and Tsai SY. (2010) Direct transcriptional regulation of neuropilin-2 by COUP-TFII modulates multiple steps in murine lymphatic vessel development. *J. Clin. Invest.* **120**: 1694-707 [PMID:20364082]
36. Liu X, Ge R, Westmoreland S, Cooney AJ, Tsai SY, Tsai MJ and Ricciardi RP. (1994) Negative regulation by the R2 element of the MHC class I enhancer in adenovirus-12 transformed cells correlates with high levels of COUP-TF binding. *Oncogene* **9**: 2183-90 [PMID:8036004]
37. Liu X, Huang X and Sigmund CD. (2003) Identification of a nuclear orphan receptor (Ear2) as a negative regulator of renin gene transcription. *Circ. Res.* **92**: 1033-40 [PMID:12690040]
38. Liu Y, Yang N and Teng CT. (1993) COUP-TF acts as a competitive repressor for estrogen receptor-mediated activation of the mouse lactoferrin gene. *Mol. Cell. Biol.* **13**: 1836-46 [PMID:8441416]
39. Lodato S, Tomassy GS, De Leonibus E, Uzcategui YG, Andolfi G, Armentano M, Touzot A, Gaztelu JM, Arlotta P and Menendez de la Prida L *et al*.. (2011) Loss of COUP-TFI alters the balance between caudal ganglionic eminence- and medial ganglionic eminence-derived cortical interneurons and results in resistance to epilepsy. *J. Neurosci.* **31**: 4650-62 [PMID:21430164]
40. Lu XP, Salbert G and Pfahl M. (1994) An evolutionary conserved COUP-TF binding element in a neural-specific gene and COUP-TF expression patterns support a major role for COUP-TF in neural development. *Mol. Endocrinol.* **8**: 1774-88 [PMID:7708064]
41. Lutz B, Kuratani S, Cooney AJ, Wawersik S, Tsai SY, Eichele G and Tsai MJ. (1994) Developmental regulation of the orphan receptor COUP-TF II gene in spinal motor neurons. *Development* **120**: 25-36 [PMID:8119130]
42. Marcus SL, Winrow CJ, Capone JP and Rachubinski RA. (1996) A p56(lck) ligand serves as a coactivator of an orphan nuclear hormone receptor. *J. Biol. Chem.* **271**: 27197-200 [PMID:8910285]
43. Miyajima N, Kadowaki Y, Fukushige S, Shimizu S, Semba K, Yamanashi Y, Matsubara K, Toyoshima K and Yamamoto T. (1988) Identification of two novel members of erbA superfamily by molecular cloning: the gene products of the two are highly related to each other. *Nucleic Acids Res.* **16**: 11057-74 [PMID:2905047]
44. Montemayor C, Montemayor OA, Ridgeway A, Lin F, Wheeler DA, Pletcher SD and Pereira FA. (2010) Genome-wide analysis of binding sites and direct target genes of the orphan nuclear receptor NR2F1/COUP-TFI. *PLoS ONE* **5**: e8910 [PMID:20111703]
45. Métivier R, Gay FA, Hübner MR, Flouriot G, Salbert G, Gannon F, Kah O and Pakdel F. (2002) Formation of an hER alpha-COUP-TFI complex enhances hER alpha AF-1 through Ser118 phosphorylation by MAPK. *EMBO J.* **21**: 3443-53 [PMID:12093745]
46. Naka H, Nakamura S, Shimazaki T and Okano H. (2008) Requirement for COUP-TFI and II in the temporal specification of neural stem cells in CNS development. *Nat. Neurosci.* **11**: 1014-23 [PMID:19160499]
47. Ogino M, Nagata K, Miyata M and Yamazoe Y. (1999) Hepatocyte nuclear factor 4-mediated activation of rat CYP3A1 gene and its modes of modulation by apolipoprotein AI regulatory protein I and v-ErbA-related protein 3. *Arch. Biochem. Biophys.* **362**: 32-7 [PMID:9917326]
48. Pereira FA, Qiu Y, Zhou G, Tsai MJ and Tsai SY. (1999) The orphan nuclear receptor COUP-TFII is required for angiogenesis and heart development. *Genes Dev.* **13**: 1037-49 [PMID:10215630]
49. Pipaón C, Tsai SY and Tsai MJ. (1999) COUP-TF upregulates NGFI-A gene expression through an Sp1 binding site. *Mol. Cell. Biol.* **19**: 2734-45 [PMID:10082539]
50. Qin J, Chen X, Xie X, Tsai MJ and Tsai SY. (2010) COUP-TFII regulates tumor growth and metastasis by modulating tumor angiogenesis. *Proc. Natl. Acad. Sci. U.S.A.* **107**: 3687-92 [PMID:20133706]
51. Qin J, Chen X, Yu-Lee LY, Tsai MJ and Tsai SY. (2010) Nuclear receptor COUP-TFII controls pancreatic

islet tumor angiogenesis by regulating vascular endothelial growth factor/vascular endothelial growth factor receptor-2 signaling. *Cancer Res.* **70**: 8812-21 [PMID:20978203]

52. Qin J, Wu SP, Creighton CJ, Dai F, Xie X, Cheng CM, Frolov A, Ayala G, Lin X and Feng XH *et al.*. (2013) COUP-TFII inhibits TGF-β-induced growth barrier to promote prostate tumorigenesis. *Nature* **493**: 236-40 [PMID:23201680]
53. Qiu Y, Cooney AJ, Kuratani S, DeMayo FJ, Tsai SY and Tsai MJ. (1994) Spatiotemporal expression patterns of chicken ovalbumin upstream promoter-transcription factors in the developing mouse central nervous system: evidence for a role in segmental patterning of the diencephalon. *Proc. Natl. Acad. Sci. U.S.A.* **91**: 4451-5 [PMID:8183930]
54. Qiu Y, Pereira FA, DeMayo FJ, Lydon JP, Tsai SY and Tsai MJ. (1997) Null mutation of mCOUP-TFI results in defects in morphogenesis of the glossopharyngeal ganglion, axonal projection, and arborization. *Genes Dev.* **11**: 1925-37 [PMID:9271116]
55. Rosa A and Brivanlou AH. (2011) A regulatory circuitry comprised of miR-302 and the transcription factors OCT4 and NR2F2 regulates human embryonic stem cell differentiation. *EMBO J.* **30**: 237-48 [PMID:21151097]
56. Satoh S, Tang K, Iida A, Inoue M, Kodama T, Tsai SY, Tsai MJ, Furuta Y and Watanabe S. (2009) The spatial patterning of mouse cone opsin expression is regulated by bone morphogenetic protein signaling through downstream effector COUP-TF nuclear receptors. *J. Neurosci.* **29**: 12401-11 [PMID:19812316]
57. Schaeffer E, Guillou F, Part D and Zakin MM. (1993) A different combination of transcription factors modulates the expression of the human transferrin promoter in liver and Sertoli cells. *J. Biol. Chem.* **268**: 23399-408 [PMID:8226864]
58. Scott DK, Mitchell JA and Granner DK. (1996) The orphan receptor COUP-TF binds to a third glucocorticoid accessory factor element within the phosphoenolpyruvate carboxykinase gene promoter. *J. Biol. Chem.* **271**: 31909-14 [PMID:8943235]
59. Shibata H, Nawaz Z, Tsai SY, O'Malley BW and Tsai MJ. (1997) Gene silencing by chicken ovalbumin upstream promoter-transcription factor I (COUP-TFI) is mediated by transcriptional corepressors, nuclear receptor-corepressor (N-CoR) and silencing mediator for retinoic acid receptor and thyroid hormone receptor (SMRT). *Mol. Endocrinol.* **11**: 714-24 [PMID:9171235]
60. Smirnov DA, Hou S, Liu X, Claudio E, Siebenlist UK and Ricciardi RP. (2001) Coup-TFII is up-regulated in adenovirus type 12 tumorigenic cells and is a repressor of MHC class I transcription. *Virology* **284**: 13-9 [PMID:11352663]
61. Sosa MS, Parikh F, Maia AG, Estrada Y, Bosch A, Bragado P, Ekpin E, George A, Zheng Y and Lam HM *et al.*. (2015) NR2F1 controls tumour cell dormancy via SOX9- and RARβ-driven quiescence programmes. *Nat Commun* **6**: 6170 [PMID:25636082]
62. Srinivasan RS, Geng X, Yang Y, Wang Y, Mukatira S, Studer M, Porto MP, Lagutin O and Oliver G. (2010) The nuclear hormone receptor Coup-TFII is required for the initiation and early maintenance of Prox1 expression in lymphatic endothelial cells. *Genes Dev.* **24**: 696-707 [PMID:20360386]
63. Stroup D and Chiang JY. (2000) HNF4 and COUP-TFII interact to modulate transcription of the cholesterol 7alpha-hydroxylase gene (CYP7A1). *J. Lipid Res.* **41**: 1-11 [PMID:10627496]
64. Stroup D, Crestani M and Chiang JY. (1997) Orphan receptors chicken ovalbumin upstream promoter transcription factor II (COUP-TFII) and retinoid X receptor (RXR) activate and bind the rat cholesterol 7alpha-hydroxylase gene (CYP7A). *J. Biol. Chem.* **272**: 9833-9 [PMID:9092518]
65. Sugiyama T, Wang JC, Scott DK and Granner DK. (2000) Transcription activation by the orphan nuclear receptor, chicken ovalbumin upstream promoter-transcription factor I (COUP-TFI). Definition of the domain involved in the glucocorticoid response of the phosphoenolpyruvate carboxykinase gene. *J. Biol. Chem.* **275**: 3446-54 [PMID:10652338]
66. Takamoto N, Kurihara I, Lee K, Demayo FJ, Tsai MJ and Tsai SY. (2005) Haploinsufficiency of chicken ovalbumin upstream promoter transcription factor II in female reproduction. *Mol. Endocrinol.* **19**: 2299-308 [PMID:15890675]
67. Takamoto N, You LR, Moses K, Chiang C, Zimmer WE, Schwartz RJ, DeMayo FJ, Tsai MJ and Tsai SY.

(2005) COUP-TFII is essential for radial and anteroposterior patterning of the stomach. *Development* **132**: 2179-89 [PMID:15829524]

68. Tan JJ, Ong SA and Chen KS. (2011) Rasd1 interacts with Ear2 (Nr2f6) to regulate renin transcription. *BMC Mol. Biol.* **12**: 4 [PMID:21247419]
69. Tang K, Xie X, Park JI, Jamrich M, Tsai S and Tsai MJ. (2010) COUP-TFs regulate eye development by controlling factors essential for optic vesicle morphogenesis. *Development* **137**: 725-34 [PMID:20147377]
70. Tomassy GS, De Leonibus E, Jabaudon D, Lodato S, Alfano C, Mele A, Macklis JD and Studer M. (2010) Area-specific temporal control of corticospinal motor neuron differentiation by COUP-TFI. *Proc. Natl. Acad. Sci. U.S.A.* **107**: 3576-81 [PMID:20133588]
71. Tran P, Zhang XK, Salbert G, Hermann T, Lehmann JM and Pfahl M. (1992) COUP orphan receptors are negative regulators of retinoic acid response pathways. *Mol. Cell. Biol.* **12**: 4666-76 [PMID:1328857]
72. Wang LH, Tsai SY, Cook RG, Beattie WG, Tsai MJ and O'Malley BW. (1989) COUP transcription factor is a member of the steroid receptor superfamily. *Nature* **340**: 163-6 [PMID:2739739]
73. Warnecke M, Oster H, Revelli JP, Alvarez-Bolado G and Eichele G. (2005) Abnormal development of the locus coeruleus in Ear2(Nr2f6)-deficient mice impairs the functionality of the forebrain clock and affects nociception. *Genes Dev.* **19**: 614-25 [PMID:15741322]
74. Widom RL, Rhee M and Karathanasis SK. (1992) Repression by ARP-1 sensitizes apolipoprotein AI gene responsiveness to RXR alpha and retinoic acid. *Mol. Cell. Biol.* **12**: 3380-9 [PMID:1321332]
75. Wu SP, Cheng CM, Lanz RB, Wang T, Respress JL, Ather S, Chen W, Tsai SJ, Wehrens XH and Tsai MJ *et al.*. (2013) Atrial identity is determined by a COUP-TFII regulatory network.*Dev. Cell* **25**: 417-26 [PMID:23725765]
76. Xie X, Qin J, Lin SH, Tsai SY and Tsai MJ. (2011) Nuclear receptor chicken ovalbumin upstream promoter-transcription factor II (COUP-TFII) modulates mesenchymal cell commitment and differentiation. *Proc. Natl. Acad. Sci. U.S.A.* **108**: 14843-8 [PMID:21873211]
77. Yamaguchi H, Zhou C, Lin SC, Durand B, Tsai SY and Tsai MJ. (2004) The nuclear orphan receptor COUP-TFI is important for differentiation of oligodendrocytes. *Dev. Biol.* **266**: 238-51 [PMID:14738874]
78. You LR, Lin FJ, Lee CT, DeMayo FJ, Tsai MJ and Tsai SY. (2005) Suppression of Notch signalling by the COUP-TFII transcription factor regulates vein identity. *Nature* **435**: 98-104 [PMID:15875024]
79. You LR, Takamoto N, Yu CT, Tanaka T, Kodama T, Demayo FJ, Tsai SY and Tsai MJ. (2005) Mouse lacking COUP-TFII as an animal model of Bochdalek-type congenital diaphragmatic hernia. *Proc. Natl. Acad. Sci. U.S.A.* **102**: 16351-6 [PMID:16251273]
80. Yu CT, Tang K, Suh JM, Jiang R, Tsai SY and Tsai MJ. (2012) COUP-TFII is essential for metanephric mesenchyme formation and kidney precursor cell survival. *Development* **139**: 2330-9 [PMID:22669823]
81. Zhang Y and Dufau ML. (2001) EAR2 and EAR3/COUP-TFI regulate transcription of the rat LH receptor. *Mol. Endocrinol.* **15**: 1891-905 [PMID:11682620]
82. Zhao B, Hou S and Ricciardi RP. (2003) Chromatin repression by COUP-TFII and HDAC dominates activation by NF-kappaB in regulating major histocompatibility complex class I transcription in adenovirus tumorigenic cells. *Virology* **306**: 68-76 [PMID:12620799]
83. Zhou C, Qiu Y, Pereira FA, Crair MC, Tsai SY and Tsai MJ. (1999) The nuclear orphan receptor COUP-TFI is required for differentiation of subplate neurons and guidance of thalamocortical axons. *Neuron* **24**: 847-59 [PMID:10624948]
84. Zhou C, Tsai SY and Tsai MJ. (2001) COUP-TFI: an intrinsic factor for early regionalization of the neocortex. *Genes Dev.* **15**: 2054-9 [PMID:11511537]
85. Zhou X, Liu F, Tian M, Xu Z, Liang Q, Wang C, Li J, Liu Z, Tang K and He M *et al.*. (2015) Transcription factors COUP-TFI and COUP-TFII are required for the production of granule cells in the mouse olfactory bulb. *Development* **142**: 1593-605 [PMID:25922524]
86. Zhu XG, Park KS, Kaneshige M, Bhat MK, Zhu Q, Mariash CN, McPhie P and Cheng SY. (2000) The orphan nuclear receptor Ear-2 is a negative coregulator for thyroid hormone nuclear receptor function. *Mol. Cell. Biol.* **20**: 2604-18 [PMID:10713182]