

Representative Publications (*from 290+, in 6 topical subjects of research*):

Developmental Biology (Wnt Frizzled-based signaling in development)

276. Bertalovitz, A.C., Pau, M.S., Gao, S., Malbon, C.C., and Wang, H.Y. (2016)
Frizzled-4 C-terminus Distal to KTXXXW Motif is Essential for Normal Dishevelled Recruitment and Norrin-stimulated Activation of Lef/Tcf-dependent Transcriptional Activation
J. Mol. Signaling, **11**: 1-18.
275. Pau, M.S., Gao, S., Malbon, C.C., Wang, H.Y. and Bertalovitz, A.C. (2015)
F328S Frizzled-4 Implicated in Familial Exudative Vitreoretinopathy Displays Impaired Ability to Recruit Dishevelled
J. Mol. Signaling, **10**: 5-15.
270. Bikkavilli, R.K., Avasarala, S., Vanscoyk, M., Scheler, M., Kelley, N., Malbon, C.C., and Winn, R.A. (2012)
Dishevelled3 is a Novel Arginine Methyl Transferase Substrate.
Nature (Scientific Reports) **2**: 805-812
259. Yokoyama, N., Golebiewska, U., Wang, H.Y., and Malbon, C.C. (2010)
Wnt-dependent Assembly of Supermolecular Dishevelled 3-based Complexes.
J. Cell Science, **123**: 3693-3702. (see "In This Issue" for highlights)
251. Okoye, U.C., Malbon, C.C., and Wang, H.-y. (2008)
Wnt and Frizzled RNA Expression in Human Mesenchymal and Embryonic (H7) Stem Cells.
(PubMed "highly accessed article")
J. Mol. Signal., **3**:16-22.
248. Bikkavilli, R.K., Feigin, M. E., and Malbon, C.C. (2008)
G-protein Galpha o Mediates Wnt/c-Jun N-terminal Kinase Signaling through Dvl1,3/RhoA Family Members/MEKK1,4 in Mammalian Cells.
J. Cell Science, **121**: 234-245.
233. Malbon, C. C. (2005)
G proteins in Development.
Nature Reviews: (Molecular Cell Biology), **6**: 689-701.
232. Malbon, C.C. (2005)
Beta-Catenin, Cancer, and G Proteins: Not just for Frizzleds Anymore.
Science (STKE), **292**, pe35.
226. Lee, Y.-n., Malbon, C.C., and Wang, H.-y. (2004)
G α 13 Signals via p115RhoGEF Cascades Regulating JNK1 and Primitive Endoderm Formation.
J. Biol. Chem., **279**: 54896-54904.
221. Wang, H.Y., and Malbon, C.C. (2004)
Wnt-Frizzled Signaling to G-protein-Coupled Effectors.

Cell. Mol. Life Sci., **61**: 69-75.

212. Wang, H.Y., and Malbon, C.C. (2003)
Wnt Signaling, Ca^{2+} , and Cyclic GMP: Visualizing Frizzled Functions.
Science, **300**:1529-1530.
208. Ahumada, A., Slusarski, D., Liu, X., Moon, R.T., Malbon, C.C., and Wang, H-y. (2002).
Activation of Rat Frizzled-2 Through Phosphodiesterase and Cyclic GMP.
Science, **298**: 2006-2010.
205. Liu, T., Lee, Y-N., Malbon, C.C., and Wang, H.Y. (2002)
Activation of the β -catenin/Lef-Tcf Pathway is Obligate for Formation of Primitive Endoderm by Mouse F9 Totipotent, Teratocarcinoma Cells in Response to Retinoic Acid.
J. Biol. Chem., **277**, 30887-30891.
191. Liu, T., DeCostanzo, A. J., Liu, X., Wang, H.-y., Hallagan, S., Moon, R.T. and Malbon, C.C. (2001)
Heterotrimeric G-proteins Go and Gq Mediate Signaling from Activation of rat Frizzled-1 to the Beta-catenin/Lef-Tcf Pathway in Development.
Science, **292**: 1718-1722.
180. Liu, X., Liu, T., Slusarski, D.C., Yang-Snyder, J., Malbon, C.C., Moon, R.T., and Wang, H.-y. (1999)
Activation of a Frizzled-2/ β -Adrenergic Receptor Chimera Promotes Wnt-Signaling and Differentiation of Mouse F9 Teratocarcinoma Cells via $G\alpha_o$ and $G\alpha_t$.
Proc. Natl. Acad. Sci. U.S.A., **96**, 14383-14388.
178. Liu, T., Liu X., Wang, H.-y., and Malbon, C.C. (1999)
Activation of rat Frizzled-1 Promotes Wnt-signaling and Differentiation of Mouse F9 Teratocarcinoma Cells via Pathways that Require $G\alpha_q$ and $G\alpha_o$ Function.
J. Biol. Chem., **274**, 33539-33545.
174. Sheldahl, L., Park, M., Malbon, C.C. and Moon, R. (1999)
Protein Kinase C is Differentially Stimulated by Wnt and Frizzled Homologs in a G Protein Dependent Manner.
Current Biology, **9**(13): 695-698.
159. Chen, J.-F., Guo, J.H., Moxham, C.M., Wang, H.-y., and Malbon, C.C. (1997)
Conditional, Tissue-Specific Expression of (Q205L) $G_{i\alpha 2}$ *in vivo* Mimics Insulin Action.
J. Mol. Med. **75**, 283-289.
146. Moxham, C.M., and Malbon, C.C. (1996)
 $G_{i\alpha 2}$ -deficiency Impairs Insulin Action *in vivo*.
Nature **379**, 840-844.
126. Moxham, C.M., Hod, Y., and Malbon, C.C. (1993)
 $G_{i\alpha 2}$ Mediates the Inhibitory Regulation of Adenylylcyclase *in vivo*: Analysis in Transgenic Mice with $G_{i\alpha 2}$ Suppressed by Inducible Antisense RNA.
Devel. Genetics **14**, 266-273.

125. Moxham, C.M., Hod, Y., and Malbon, C.C. (1993)
Induction of $G_{i\alpha 2}$ -specific Antisense RNA *in vivo* Inhibits Neonatal Growth.
Science **260**, 991-995.
120. Watkins, D.C., Johnson, G.L., and Malbon, C.C. (1992)
Regulation of the Differentiation of Teratocarcinoma Cells into Primitive Endoderm by $G_{i\alpha 2}$.
Science **258**, 1373-1375.
119. Wang, H.-y., Watkins, D.C., and Malbon, C.C. (1992)
Antisense Oligodeoxynucleotides to G_s Protein α -subunit Sequence Accelerate Differentiation
of Fibroblasts to Adipocytes.
Nature **358**, 334-337.

Receptor (GPCR) Structure & Biology

272. Gao, S., Malbon, C.C., and Wang, H.Y. (2014)
Probing the Stoichiometry of Beta2-adrenergic Receptor Phosphorylation
by Targeted Mass Spectrometry
J. Mol. Signaling, **9**: 3-18.
258. Tao, J., Wang, H.-y., and Malbon, C. (2010)
AKAR2-AKAP12 Fusion Protein "Biosenses" Dynamic Phosphorylation and
Localization of a GPCR-based Scaffold.
J. Mol. Signaling, **5**: 17-39.
230. Yin, D., Gavi, S., Shumay, E., Duell, K., Konopka, J.B., Malbon, C.C., and Wang, H.-y. (2005)
Successful Expression of a Functional Yeast G-protein-coupled receptor (Ste2) in Mammalian
Cells.
Biochem. Biophys. Res. Commun., **329**: 281-287.
224. Malbon, C.C., and Wang, H-y. (2004)
Adrenergic Receptors (2nd edition).
Nature
Encyclopedia of Life Sciences, Macmillan Reference Ltd.
206. Shumay, E., Song, X., Wang, H-y., and Malbon, C. C. (2002)
pp60Src Mediates Insulin-stimulated Sequestration of the β_2 -adrenergic Receptor: Insulin
Stimulates pp60Src Phosphorylation and Activation
Molecular Biology of the Cell, **13**: 3943-3954.
202. Doronin, S., Shumay, E., Wang, H-y., and Malbon, C.C. (2002)
Akt Mediates Sequestration of the β_2 -adrenergic Receptor in Response to Insulin.
J. Biol. Chem., **277**:15124-15131.
190. Fan, G.-f., Shumay, E., Malbon, C. C. and Wang, H-y. (2001)
c-Src Tyrosine Kinase Binds the β_2 -adrenergic Receptor via Phospho-Tyr350, Phosphorylates
G-protein –linked Receptor Kinase 2, and Mediates Agonist-Induced Receptor Desensitization.
J. Biol. Chem., **276**: 13240-13247.

181. Tholanikunnel, B.G., Raymond, R., and Malbon, C.C. (1999)
Detailed Analysis of the AU-rich Elements in the 3'-untranslated Region of β_2 -adrenergic Receptor mRNA by Mutagenesis and Identification of the Homologous AU-rich Region from Different Species
Biochemistry, **38**, 15564-15572
163. Tholanikunnel, B.G., and Malbon, C.C. (1997)
A 20-nucleotide AU-rich Element of β_2 -adrenergic Receptor mRNA Mediates Binding to β ARB Protein and Is Obligatory for Agonist-induced Destabilization of Receptor mRNA.
J. Biol. Chem. **272**, 11471-11479.
155. Karoor, V., and Malbon, C.C. (1996)
IGF-1 Stimulates Phosphorylation of the β_2 -adrenergic Receptor *in vivo* on Sites Distinct from those Phosphorylated in Response to Insulin.
J. Biol. Chem. **271**, 29347-29352.
144. Baltensperger, K., Karoor, V., Paul, H., Czech, M.P., Ruoho, A., and Malbon, C.C. (1996)
The β -Adrenergic Receptor is a Substrate for the Insulin Receptor Kinase.
J. Biol. Chem. **271**, 1061-1064.
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Phosphorylation of Tyrosyl Residues 350/354 and 364 on the β -Adrenergic Receptor is Obligatory for Counterregulatory Effects of Insulin.
J. Biol. Chem. **270**, 25305-25308.
140. Tholanikunnel, B.G., Granneman, J., and Malbon, C.C. (1995)
The Mr35,000 β -adrenergic Receptor mRNA-binding Protein Binds Transcripts of G-protein-linked Receptors Which Undergo Agonist-induced Destabilization.
J. Biol. Chem. **270**, 12787-12793.
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Antagonist Conformations Within the Beta-Adrenergic Receptor Ligand Binding Pocket.
Mol. Pharmacology **49**, 1021-1032.
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The 35,000-Mr β -adrenergic receptor mRNA-binding (β ARB) protein induced by agonists requires both an AUUUA pentamer and U-rich domains for RNA recognition.
J. Biol. Chem. **268**, 25769-25775.
118. Hadcock, J.R., Port, J.D., Gelman, M.S., and Malbon, C.C. (1992)
Cross-talk Between Tyrosine Kinase and G-protein-linked Receptors: Phosphorylation of β_2 -adrenergic receptors in Response to Insulin.
J. Biol. Chem. **267**, 26017-26022.
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 β -Adrenergic Agonists that Down-regulate Receptor mRNA Up-regulate a 35,000-Mr Protein(s) that Selectively Binds to β -Adrenergic Receptor mRNAs.

J. Biol. Chem. **267**, 24103-24108.

112. Hadcock, J.R., Port, J.D., and Malbon, C.C. (1991)
Cross-regulation between G-protein-mediated Pathways: Activation of the Inhibitory Pathway of Adenylyl Cyclase Increases the Expression of β_2 -adrenergic Receptors.
J. Biol. Chem. **266**, 11915-11922
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Cross-regulation Between G-protein-mediated Pathways: Stimulation of Adenylyl Cyclase Increases Expression of the Inhibitory G-protein, $G_{i\alpha 2}$.
J. Biol. Chem. **265**, 14784-14790
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Rhodopsin Expressed in Chinese Hamster Ovary Cells Regulates Adenylyl Cyclase. *J. Mol. Endocrin.* **4**, 71-79.
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High-efficiency Expression of Mammalian β -adrenergic Receptors in Baculovirus-infected Insect Cells.
Biochem. Biophys. Res. Commun. **163**, 1265-1269.
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J. Biol. Chem. **264**, 19928-19934.
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Site-directed Antipeptide Antibodies Define the Topography of the β -adrenergic Receptor.
J. Biol. Chem. **264**, 14424-14431.
68. Hadcock, J.R., and Malbon, C.C. (1988)
Regulation of β -adrenergic Receptors By "Permissive" Hormones: Glucocorticoids Increase Steady-state Levels of Receptor mRNA.
Proc. Natl. Acad. Sci. USA **85**, 8415-8419.
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Down-regulation of β -adrenergic Receptors: Agonist-induced Reduction in Receptor mRNA Levels.
Proc. Natl. Acad. Sci. USA **85**, 5021-5025.
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Mol. Pharmacol. **33**, 486-492.
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Biochem. J. **248**, 557-566.

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Antipeptide Antibodies Directed Against Cytoplasmic Rhodopsin Sequences Recognize the β -adrenergic Receptor.
J. Biol. Chem. **262**, 4319-4323
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J. Biol. Chem. **261**, 1456-14570.
44. Moxham, C.P., and Malbon, C.C. (1985)
The Fat Cell β_1 -Adrenergic Receptor: Structural Evidence for the Existence of Disulfide Bridges Essential for Ligand Binding.
Biochemistry **24**, 6072-6077.
41. Graziano, M.P., Moxham, C.P., and Malbon, C.C. (1985)
Purified Rat Hepatic β_2 -adrenergic Receptor: Structural Similarities to the Rat Fat Cell β_1 -adrenergic Receptor.
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The Fat Cell β -adrenergic Receptor: Purification and Characterization of a Mammalian β_1 -adrenergic Receptor.
J. Biol. Chem. **259**, 1344-1350.
7. Malbon, C.C., and Zull, J.E. (1977)
Studies of Binding of Parathyroid Hormone to a Detergent-Dispersed Preparation from Bovine Kidney Cortex Plasma Membranes.
J. Biol. Chem. **252**, 1079-1083. (Cited in 2012 Nobel Committee history of receptor analysis)

Signaling Scaffolds (AKAPs) and Signalosomes

264. Goa, S., Wang, H.-y., and Malbon, C.C. (2011)
AKAP5 and AKAP12 Form Homo-oligomers.
J. Mol. Signaling, **6**: 3-13.
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AKAR2-AKAP12 Fusion Protein "Biosenses" Dynamic Phosphorylation and Localization of a GPCR-based Scaffold.
J. Mol. Signaling, **5**: 17-39.
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G-protein-coupled Receptor-Associated A-kinase Anchoring Proteins AKAP5 and AKAP12: Differential Trafficking and Distribution.

Cell Signal., **21**:136-142.

240. Tao, J., Shumay, E., Wang, H.-y., and Malbon, C.C. (2007)
Src Docks to A-kinase Anchoring Protein Gravin, Regulating Beta2-adrenergic Receptor Resensitization and Recycling.
J. Biol. Chem., **282**: 6597-6608.
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J. Biol. Chem., **281**: 23932-29344.
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Biochem. J., **379**: 1-9.
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EMBO Journal, **22**: 6419-6429.
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The Scaffold Protein Gravin (AKAP250) binds the Beta2-adrenergic Receptor Via the Receptor Cytoplasmic R329 to L413 Domain and Provides a Mobile Scaffold During Desensitization.
J. Biol. Chem., **276**: 24005-24014.
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Gravin (AKAP250)-mediated Formation of Signaling Complexes in β_2 -Adrenergic Receptor Desensitization and Resensitization.
J. Biol. Chem., **275**, 19025-19034.
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Dynamic Complexation of β_2 -adrenergic Receptors with Protein Kinases and Phosphatases. (*early identification of multivalency of AKAP family, esp. AKAP250*)
J. Biol. Chem., **274**, 1588-1595.
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Proc. Natl. Acad. Sci. U.S.A. **91**, 12193-12197.

Cancer Biology & Clinically-based Research

162. Sivaraman, V.S., Wang, H.-y., Nuovo, G., and Malbon, C.C. (1997)
Hyperexpression of Mitogen-activated Protein Kinase is Associated with Breast Cancer. (see accompanying editorial)
J. Clin. Invest. **99**, 1478-1483.
26. Malbon, C.C., and Greenberg, M.L. (1982)

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J. Clin. Invest. **69**, 414-426.

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 Effect of Thyroid Status on Insulin Action in Rat Adipocytes and Skeletal Muscle.
J. Clin. Invest. **66**, 574-583.

Visual Biology

113. Brown, J.E., Combs, A., Ackerman, K., and Malbon, C.C. (1991)
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Visual Neurosciences **7**, 589-595.
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Biochem. J. **247**, 293-297.
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 Antipeptide Antibodies Directed Against Cytoplasmic Rhodopsin Sequences Recognize the β -adrenergic Receptor.
J. Biol. Chem. **262**, 4319-4323
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Limulus Ventral Photoreceptors Contain a Homologue of the α -Subunit of Mammalian Ns.
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J. Physiology (London) **353**, 523-539.
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Vision Research **12**, 714-718.

Personal Reflections

290. Malbon, C.C. (2017)
 From Bench to Bedside: Transitions
ASBMB Today, **8**: 117-121.

274. Malbon, E.R. and Malbon, C.C. (2015)
Gathering Thoughts (book of prose and poetry)
CreateSpace Independent Publishing, Inc. (North Carolina) 130 pp
271. Malbon, C. C. (2013)
Abortion in 21st Century America (book)
CreateSpace Independent Publishing, Inc. (North Carolina) 280 pp
[an Amazon topical best seller, Top 20 best sellers, 2013-2018]