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EDUCATION

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| 1981-1985 | License en Science Chimiques (B.S. in Chemistry)<br>Catholic University of Louvain<br>Honors: Cum Laude (Distinction)                  |
| 1985-1990 | Ph.D. in Science (Advisor: Dr. J.N. Octave)<br>Catholic University of Louvain<br>Honors: Summa cum Laude (La Plus Grande Distinction). |

PROFESSIONAL EXPERIENCE

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| 1990-1992    | Postdoctoral Fellow (Advisor: Dr. David V. Goeddel)<br>Department of Molecular Biology<br>Genentech, Inc. |
| 1992-1996    | Research Scientist<br>Department of Molecular Biology<br>Genentech, Inc.                                  |
| 1996-2002    | Senior Scientist<br>Department of Molecular Oncology<br>Genentech, Inc.                                   |
| 2002-present | Staff Scientist<br>Department of Molecular Oncology<br>Genentech, Inc.                                    |
| 2002-2004    | Director<br>Department of Molecular Biology<br>Genentech, Inc.  |
| 2004-2007    | Senior Director<br>Department of Molecular Biology<br>Genentech, Inc.                                     |
| 2007-2013    | Vice President Research-Molecular Biology<br>Genentech, Inc.  |
| 2013-Present | Vice President Research-Molecular Oncology<br>Genentech, Inc.   |

#### HONORS AND AWARDS

- Alzheimer Belgium Foundation Travel Award (1989)
- Jean Stas Award (1990)
- Pierre Bruylants Award (1990)
- Swedish Society of Hematology Award (1995)
- Achievement in Advancing Targeted Therapies for Cancer & Melanoma from the American Skin Association (2011)
- Most Notable People in R&D (R&D Directions) (2012)
- Drug Discovery of the Year Award by the British Pharmacological Society (2012)
- Elected Fellow of the American Association for the Advancement of Science (2016)
- Member of the Board of WELBIO (Walloon (Belgium) Institute for Life Lead Sciences) (2016-)

#### PUBLICATIONS

1. Octave, J.-N., **de Sauvage, F.**, Macq, A.F. & Maloteaux, J.M. Cloning the cdna from normal brain and brain of patients with Alzheimer's disease in the expression vector lamda gt11. *Prog. Neuro-Psychopharmacol. Biol. Psychiat.* 12, 813-820. (1988)
2. Vitek, M.P., Rasool, C.Q., **de Sauvage, F.**, Vitek, S.M., Bartus, R.T., Beer, B., Ashton, R.A., Macq, A.F., Maloteaux, J.M., Blume, A.J. & Octave, J.-N. Absence of mutation in the beta amyloid cdnas cloned from the brains of three patients with sporadic alzheimer's disease. *Mol. Brain Res.* 4, 121-131. (1988)
3. Octave, J.-N., **de Sauvage, F.**, Macq, A.F., Maloteaux, J.M. & Laterre, E.C. Identification of different beta amyloid cDNAs cloned from the brain of a patient with sporadic Alzheimer's disease. *Neurochem. International* 14, 163-166. (1989)
4. **de Sauvage, F.** & Octave, J.-N. A novel mRNA of the A4 amyloid precursor gene coding for a possibly secreted protein. *Science* 245, 651-653. (1989)
5. Octave, J.-N., **de Sauvage, F.** & Maloteaux, J.M. Modification of neuronal cell adhesion affects the genetic expression of the A4 amyloid peptide precursor. *Mol. Brain Res.* 486, 369-371. (1989)
6. **de Sauvage, F.**, Camerato, T. & Goeddel, D.V. Primary structure and functional expression of the human receptor for *Escherichia coli* heat stable enterotoxin. *J. Biol. Chem.* 266, 17912-17918. (1991)
7. **de Sauvage, F.J.**, Horuk, R., Bennett, G., Quan, C., Burnier, J. & Goeddel, D.V. Characterization of the recombinant human receptor for the *Escherichia coli* heat stable enterotoxin. *J. Biol. Chem.* 267, 6479-6482. (1992)
8. Koller, K., **de Sauvage, F.J.**, Lowe, D. & Goeddel, D.V. Conservation of the kinase-like regulatory domain is essential for activation of the natriuretic peptide receptor guanylyl cyclases. *Mol. Cell. Biol.* 12, 2581-2590. (1992)
9. **de Sauvage, F.J.**, Kruys, V., Huez, G. & Octave, J.-N. The 3' untranslated region of the A4 amyloid peptide precursor mRNA stimulates the translation. *EMBO J.* 11, 3099-3103. (1992)
10. Shyjan, A.W., **de Sauvage, F.J.**, Gillett, N., Goeddel, D.V. & Lowe, D.G. Molecular Cloning of a Retina-Specific Guanylyl Cyclase. *Neuron*, 9, 727-737. (1992)
11. **de Sauvage, F.J.**, Keshav, S., Kuang, W.-J., Gillett, N., Henzel, W. & Goeddel, D.V. Precursor structure, expression and tissue distribution of human guanylin. *Proc. Natl. Acad. Sci. USA*, 89, 9089-9093. (1992)

12. Garcia, K.C., **de Sauvage, F.J.**, Strubble, M., Henzel, W., Reilly, D. & Goeddel, D.V. Processing and Characterization of Human Proguanylin Expressed in Escherichia coli. *J. Biol. Chem.* 268, 22397-22401. (1993)
13. Chao A.C., **de Sauvage F.J.**, Dong Y.-J., Wagner J., Goeddel D.V. & Gardner P. Activation of intestinal CFTR Cl-channel by heat-stable enterotoxin and guanylin via cAMP-dependent protein kinase. *EMBO J.* 13, 1065-1072. (1994)
14. **de Sauvage F.J.**, Hass P., Spencer S., Malloy B., Gurney A., Spencer S., Darbonne W., Henzel W., Wong S., Kuang W.-J., Oles K., Hultgren B., Solberg L., Goeddel D. & Eaton D. Stimulation of megakaryocytopoiesis and thrombopoiesis by the c-Mpl Ligand. *Nature* 369, 533-538. (1994)
15. Erickson, S.L., **de Sauvage, F.J.**, Kikly, K., Carver-Moore, K., Pitts-Meek, S., Gillett, N., Sheehan, K.C., Schreiber, R.D., Goeddel, D.V. & Moore, M.W. Decreased sensitivity to tumour-necrosis factor but normal T-cell development in TNF receptor-2 deficient mice. *Nature* 372, 560-563. (1994)
16. Gurney, A.L., Carver-Moore, K., **de Sauvage, F.J.**, & Moore, M.W. Thrombocytopenia in c-mpl-deficient mice. *Science* 265, 1445-1447. (1994)
17. Ziegler F.C., **de Sauvage F.J.**, Widmer H.R., Keller, G.A., Donahue, C., Schreiber, R.D., Malloy, B., Hass, P., Eaton, D., Matthews, W. In vitro megakaryocytopoietic and thrombopoietic activity of c-Mpl ligand (TPO) on purified murine hematopoietic stem cells. *Blood* 84,4045-4052. (1994)
18. Gurney, A.L., Kuang, W.J., Xie, M.H., Malloy, B.E., Eaton, D.L., & **de Sauvage, F.J.** Genomic structure, chromosomal localization and conserved alternative splice forms of thrombopoietin. *Blood* 85, 981-988. (1995)
19. Rudner, X.L., Mandal, K.K., **de Sauvage, F.J.**, Kindman, L.A.,& Almenoff, J.A. Regulation of cell signalling by the cytoplasmic domains of the heat -stable enterotoxin receptor: identification of autoinhibitory and activating motifs. *Proc. Natl. Acad. Sci USA* 92, 5169-5173. (1995)
20. Gurney, A.L., Wong, S.C., Henzel, W.J., & **de Sauvage, F.J.** Distinct regions of c-mpl cytoplasmic domain are coupled to the JAK-STAT signal transduction pathway and Shc phosphorylation. *Proc. Natl. Acad. Sci USA.* 92, 5292-5296. (1995)
21. Gardner-P; Chao A.C.& **de-Sauvage F. J.** STa receptors: physiological and pathophysiological regulation of intestinal secretion by 5'-cyclic guanosine monophosphate. *Gastroenterology.* 109, 325-327 (1995)
22. Eaton, D.L., and **de Sauvage, F.J.** Thrombopoietin and the humoral regulation of thrombocytopoiesis. *Current Opinion in Hematology* 2, 167-171. (1995)
23. Austin L. Gurney and **Frederic J. de Sauvage.** Dissection of c-mpl and TPO Function. Studies of Knockout Mice and Receptor Signal Transduction *Stem Cell*, 14, 116-123 (1996)
24. **Frederic J. de Sauvage**, Karen Carver-Moore, Shih-Ming Luoh, Anne Ryan, Mary Dowd, Dan L. Eaton & Mark W. Moore. Physiological Regulation of Early and Late Stages of Megakaryocytopoiesis by Thrombopoietin. *J. Exp. Med.* 183, 651-656. (1996)
25. Paul J. Fielder, Austin L. Gurney, Eric Stefanich· Melinda Marian, Mark W. Moore· Karen Carver-Moore & **Frederic J. de Sauvage.** Regulation of Thrombopoietin Levels by c-mpl Mediated Binding to Platelets. *Blood* 87, 2154-2161. (1996)
26. Nancy Levin, Chris Nelson, Austin Gurney, Richard Vandlen & **Frederic J. de Sauvage.** Dissociation of Adiposity Reduction from Food Intake Decreases Following ob Protein Infusions *Proc. Natl. Acad. Sci. USA.* 93, 1726-1730. (1996)
27. Christian Beltinger, Peter White, John Maris, Erik Sulman, Sanford Jensen, Denis LePaslier, Barbara Stallard David V Goeddel, **Frederic J. de Sauvage** and Garrett M. Brodeur. Physical Mapping and Genomic Structure of the Human TNFR2 Gene. *Genomics* 35, 94-100. (1996)

28. Karen Carver-Moore, Hal E. Broxmeyer, Shiuh-Ming Luoh, Scott Cooper, Jipeng Peng, Samuel A. Burstein, Mark W. Moore and **Frederic J. de Sauvage** Low Levels of Erythroid and Myeloid Progenitors in TPO and in c-mpl Deficient Mice. *Blood* 88, 803-808 (1996)
29. James Treanor, Laurie Goodman, **Frederic J. de Sauvage**, Donna Stone, Kris Poulsen, Claus Beck, Crista Gray, Mark Armanini, Richard Pollock, Franz Hefti, Heidi Phillips, Audrey Goddard, Mark Moore, Anna Buj-Bello, Alun Davies, Naoya Asai, Masahide Takahashi, Richard Vandlen, Christopher Henderson and Arnon Rosenthal. Characterization of a Multicomponent Receptor for GDNF. *Nature* 382, 80-83. (1996)
30. Paul Fielder, Phillip Hass, Mark Nagel, Eric Stephanich, Ramon Widmer, Greg Bennett, Gilbert-Andre Keller, **Frederic J. de Sauvage** and Dan Eaton. Human Platelets as a Model for the Binding and Degradation of Thrombopoietin. *Blood* 89, 2782-2788. (1997)
31. Shiuh-Ming Luoh, Francesco Di Marco, Nancy Levin, Marc Armanini, Ming-Hong Xie, Chris Nelson, Gregory L. Bennett, Mickey Williams, Steven A. Spencer, Austin Gurney and **Frederic J. de Sauvage** Expression Cloning and Characterization of a Human Leptin Receptor Using a Biologically Active Leptin Immunoconjugate. *J. Mol. Endo.* 18, 77-85. (1997)
32. Donna Stone, Mary Hynes, Mark Armanini, Todd Swanson, Quimin Gu, Ronald Johnson, Matthew Scott, Diane Pennica, Audrey Goddard, Heidi Phillips, Markus Noll, Joan Hooper, **Frederic de Sauvage** and Arnon Rosenthal. The Tumor Suppressor Gene *Patched* Encodes a Candidate receptor for Sonic Hedgehog. *Nature* 384, 129-134. (1996)
33. Shivdasani, R.A., Fielder, P., Keller, G.A., Orkin, S.H. & **de Sauvage, F.J.** Regulation of the serum concentration of thrombopoietin in thrombocytopenic NF-E2 knockout mice. *Blood* 90, 1821-7. (1997)
34. Martin, T.G. Somberg KA, Meng YG, Cohen RL, Heid CA, **de Sauvage FJ** and Shuman MA. Thrombopoietin levels in patients with cirrhosis before and after orthotopic liver transplantation. *Ann. Intern. Med.* 127, 285-8. (1997)
35. Bunting S., Widmer R., Lipari T., Rangell L., Steinmetz H., Carver-Moore K., Moore M.W., Keller G.-A., **de Sauvage F.J.** Normal Platelets and Megakaryocytes are Produced in-vivo in the Absence of Thrombopoietin. *Blood* 90, 3423-3429(1997)
36. Eaton, D.L. & **de Sauvage, F.J.** Thrombopoietin: the primary regulator of megakaryocytopoiesis and thrombopoiesis. *Exp. Hematol.* 25, 1-7. (1997)
37. Jingwu Xie, Maximilien Murone, Shiuh-Ming Luoh, Anne Ryan, Chaohui Zhang, Quimin Gu, Jeannette M. Bonifas, Ching-Wan Lam, Mary Hynes, Audrey Goddard, Arnon Rosenthal, Ervin H. Epstein and **Frederic J. de Sauvage** Activating Smoothed Mutations in Sporadic Basal Cell Carcinoma. *Nature* 391, 90-92. (1998)
38. Murone M., Carpenter D. & **de Sauvage F.J.** Hematopoietic Deficiencies in c-mpl and TPO-Deficient Mice. *Stem Cell* 16, 1-6. (1998)
39. Milbrandt J., **de Sauvage F.J.**, Fahrner T.J., Baloh R.H., Leitner M.L., Tansey M.G., Lampe P.A., Heuckeroth R.O., Kotzbauer P.T., Simburger K.S., Golden J.P., Davies J.A., Vejsada R., Kato A.C., Hynes M., Sherman D., Nishimura M., Wang L.C., Vandlen R., Moffat B., Klein R.D., Poulsen K., Gray C., Garcés A., Johnson E.M. Jr. Persephin, a novel neurotrophic factor related to GDNF and neurturin. *Neuron* 20, 245-253. (1998)
40. **de Sauvage F.J.**, Villeval J.-L. & Shivdasani R.A. Regulation of Megakaryocytopoiesis and Platelet Production: Lessons from Animal Models. *J. Lab. Clin. Med.* 131, 496-501. (1998)
41. Chen Q., Solar G., Eaton D.L., & **de Sauvage F.J.** IL-3 does not contribute to platelet production in c-mpl-deficient mice. *Stem Cell* 16, 31-36. (1998)
42. Solar G., Kerr W., Ziegler F., Hess D., Donahue C., **de Sauvage F.J.** & Eaton D.L. Role of c-Mpl in Early Hematopoiesis *Blood* 92,4-10. (1998)

43. Qian S, Fu F, Li W, Chen Q, **de Sauvage FJ**. Primary role of the liver in thrombopoietin production shown by tissue-specific knockout. *Blood* 9,2189-91 (1998)
44. Enokido Y, **de Sauvage FJ**, Hongo JA, Ninkina N, Rosenthal A, Buchman VL, Davies AM. GFR alpha-4 and the tyrosine kinase Ret form a functional receptor complex for persephin. *Curr. Biol.* 8:1019-22 (1998)
45. Carpenter D, Stone DM, Brush J, Ryan A, Armanini M, Frantz G, Rosenthal A, **de Sauvage FJ** Characterization of two patched receptors for the vertebrate hedgehog protein family. *Proc. Natl. Acad. Sci. U. S. A.* 95:13630-4. (1998)
46. Lewis AK, Frantz GD, Carpenter DA, **de Sauvage FJ**, Gao WQ. Distinct expression patterns of notch family receptors and ligands during development of the mammalian inner ear. *Mech. Dev.* 78:159-63 (1998)
47. Murone M, Rosenthal A, **de Sauvage FJ**. Sonic hedgehog signaling by the patched-smoothened receptor complex. *Curr. Biol.* 9:76-84 (1999)
48. Stoffel R, Ziegler S, Ghilardi N, Ledermann B, **de Sauvage FJ**, Skoda RC. Permissive role of thrombopoietin and granulocyte colony-stimulating factor receptors in hematopoietic cell fate decisions in vivo. *Proc. Natl. Acad. Sci. U. S. A.* 96:698-702 (1999)
49. Shimoda N, Knapik EW, Ziniti J, Sim C, Yamada E, Kaplan S, Jackson D, **de Sauvage FJ**, Jacob H, Fishman MC Zebrafish genetic map with 2000 microsatellite markers. *Genomics* 58:219-32 (1999)
50. Murone M, Rosenthal A, **de Sauvage FJ** Hedgehog Signal Transduction: from Flies to Vertebrates. *Experimental Cell Research* 253:25-33 (1999)
51. Stone D, Murone M, Luoh S-L, Ye W, Armanini MP, Gurney A, Phillips H, Goddard A, **de Sauvage FJ**, Rosenthal A Characterization of the human Suppressor of fused; a negative regulator of the zinc-finger transcription factor Gli. *J. Cell. Sci.* 112:4437-4448 (1999)
52. Luoh S-L, Stefanich E, Solar G, Steinmetz H, Lipari T, Pestina TI, Jackson CW, and **de Sauvage FJ** Role of the Distal Half of the c-Mpl Intracellular Domain in the Control of Platelet Production by Thrombopoietin In Vivo. *Mol. Cell. Biol.* 20:507-515(2000)
53. Hynes M, Ye W, Wang K, Stone D, Murone M, **de Sauvage FJ**, Rosenthal A. The seven-transmembrane receptor smoothened cell-autonomously induces multiple ventral cell types. *Nature Neuroscience* 3:41-46 (2000)
54. Zurawel RH, Allen C, Chiappa S, Cato W, Biegel J, Cogen P, **de Sauvage FJ**, Raffel C Analysis of PTCH/SMO/SHH pathway genes in medulloblastoma. *Genes Chromosomes Cancer* 27:44-51 (2000).
55. Murone M, Luoh SM, Stone D, Li W, Gurney A, Armanini M, Grey C, Rosenthal A, **de Sauvage FJ**. Gli regulation by the opposing activities of Fused and Suppressor of Fused. *Nature Cell Biology* 5:310-312 (2000)
56. DeCamp DL, Thompson TM, **de Sauvage FJ**, Lerner MR Smoothened Activates G $\alpha$ i Mediated Signaling in Frog Melanophores. *J. Biol. Chem.* 275:26322-7 (2000)
57. Filippi M.-D., Porteu F., Le Pesteur F., Rameau P., Nogueira, M.M. Debili N., Vainchenker W., **de Sauvage F.J.**, Dubart Kupperschmitt A. and Sainteny F. Embryonic Stem cell differentiation to hematopoietic cells : a model to study the function of various regions of the intracytoplasmic domain of cytokine receptors in vitro *Experimental Hematology*. 28:1363-72. (2000)
58. Chen Q, Ghilardi N, Wang H, Baker T, Xie MH, Gurney A, Grewal IS, **de Sauvage FJ**. (2000) Development of Th1-type immune responses requires the type I cytokine receptor TCCR. *Nature*. 407:916-20. (2001)
59. Zhang J., Rosenthal A., **de Sauvage F.J.**, and Shivdasani R.A. (2001) Downregulation of Hedgehog signaling is required for organogenesis of the small intestine in *Xenopus* *Dev. Biol.* 229:188-202. (2001)

60. Bonifas JM, Pennypacker S, Chuang PT, McMahon AP, Williams M, Rosenthal A, **de Sauvage FJ**, Epstein EH Jr. (2001) Activation of expression of hedgehog target genes in basal cell carcinomas. *J Invest Dermatol.* 116:739-42(2001)
61. Shou J, Ross S, Koeppen H, **de Sauvage FJ**, Gao WQ. Dynamics of notch expression during murine prostate development and tumorigenesis. *Cancer Res* 61:7291-7 (2001)
62. Gaur, M., G. J. Murphy, **F. J. de Sauvage**, and A. D. Leavitt. Characterization of Mpl mutants using primary megakaryocyte-lineage cells from mpl(-/-) mice: a new system for Mpl structure-function studies. *Blood* 97:1653-61 (2001)
63. Andres R, Forgie A, Wyatt S, Chen Q, **de Sauvage FJ**, Davies AM. Multiple effects of artemin on sympathetic neurone generation, survival and growth. *Development* 128:3685-95(2001)
64. Filippi MD, Porteu F, Pesteur FL, Schiavon V, Millot GA, Vainchenker W, **de Sauvage FJ**, Dubart Kupperschmitt A, Sainteny F. Requirement for mitogen-activated protein kinase activation in the response of embryonic stem cell-derived hematopoietic cells to thrombopoietin in vitro. *Blood.* 99:1174-82. (2002)
65. Ghilardi N, Li J, Hongo JA, Yi S, Gurney A, **de Sauvage FJ**. A novel type I cytokine receptor is expressed on monocytes, signals proliferation, and activates STAT-3 and STAT-5. *J Biol Chem.* 277:16831-6. (2002)
66. Skelton NJ, Russell S, **de Sauvage F**, Cochran AG. Amino acid determinants of beta-hairpin conformation in erythropoietin receptor agonist peptides derived from a phage display library. *J Mol Biol.* 316(5):1111-25. (2002)
67. Sheng H, Goich S, Wang A, Grachtchouk M, Lowe L, Mo R, Lin K, **de Sauvage FJ**, Sasaki H, Hui CC, Dlugosz AA. Dissecting the Oncogenic Potential of Gli2: Deletion of an NH(2)-Terminal Fragment Alters Skin Tumor Phenotype. *Cancer Res.* 62:5308-16. (2002)
68. Aggarwal S, Ghilardi N, Xie MH, **de Sauvage FJ**, Gurney AL Interleukin-23 promotes a distinct CD4 T cell activation state characterized by the production of interleukin-17. *J Biol Chem.* 278:1910-4 (2003).
69. Wang BE, Shou J, Ross S, Koeppen H, **de Sauvage FJ**, Gao WQ. Inhibition of epithelial ductal branching in the prostate by sonic hedgehog is indirectly mediated by stromal cells. *J Biol Chem.* 278:18506-13 (2003).
70. Grachtchouk V, Grachtchouk M, Lowe L, Johnson T, Wei L, Wang A, **de Sauvage F**, Dlugosz AA. The magnitude of hedgehog signaling activity defines skin tumor phenotype. *EMBO J.* 22:2741-51 (2003).
71. Lucas S, Ghilardi N, Li J, de Sauvage FJ. IL-27 regulates IL-12 responsiveness of naive CD4+ T cells through Stat1-dependent and -independent mechanisms. *Proc Natl Acad Sci U S A.* 100:15047-52 (2003)
72. Avecilla ST, Hattori K, Heissig B, Tejada R, Liao F, Shido K, Jin DK, Dias S, Zhang F, Hartman TE, Hackett NR, Crystal RG, Witte L, Hicklin DJ, Bohlen P, Eaton D, Lyden D, **de Sauvage F**, Rafii S. Chemokine-mediated interaction of hematopoietic progenitors with the bone marrow vascular niche is required for thrombopoiesis. *Nat Med.* 10:64-71. (2004)
73. Craven SE, Lim KC, Ye W, Engel JD, **de Sauvage F**, Rosenthal A. Gata2 specifies serotonergic neurons downstream of sonic hedgehog. *Development.* 131:1165-73. (2004)
74. Ghilardi N, Kljavin N, Chen Q, Lucas S, Gurney AL, **de Sauvage FJ**. Compromised humoral and delayed-type hypersensitivity responses in IL-23-deficient mice. *J Immunol.* 172:2827-33. (2004)
75. Pearl, J. E., S. A. Khader, A. Solache, L. Gilmartin, N. Ghilardi, **F. de Sauvage**, and A. M. Cooper. IL-27 signaling compromises control of bacterial growth in mycobacteria-infected mice. *J Immunol* 173:7490-6 (2004)
76. Parker LH, Schmidt M, Jin SW, Gray AM, Beis D, Pham T, Frantz G, Palmieri S, Hillan K, Stainier DY, **de Sauvage FJ**, Ye W. The endothelial-cell-derived secreted factor Egf17 regulates vascular tube formation. *Nature.* 428:754-8. (2004)

77. Merchant M, Vajdos FF, Ultsch M, Maun HR, Wendt U, Cannon J, Desmarais W, Lazarus RA, de Vos AM, **de Sauvage FJ**. Suppressor of fused regulates Gli activity through a dual binding mechanism. *Mol Cell Biol*. :8627-41. (2004)
78. Artis D, Villarino A, Silverman M, He W, Thornton EM, Mu S, Summer S, Covey TM, Huang E, Yoshida H, Koretzky G, Goldschmidt M, Wu GD, **de Sauvage F**, Miller HR, Saris CJ, Scott P, Hunter CA. The IL-27 receptor (WSX-1) is an inhibitor of innate and adaptive elements of type 2 immunity. *J Immunol*. 173(9):5626-34. (2004).
79. Chen W, Ren XR, Nelson CD, Barak LS, Chen JK, Beachy PA, **de Sauvage F**, Lefkowitz RJ. Activity-dependent internalization of smoothened mediated by beta-arrestin 2 and GRK2. *Science*. 306(5705):2257-60 (2004).
80. Craven SE, French D, Ye W, **de Sauvage F**, Rosenthal A. Loss of Hspa9b in zebrafish recapitulates the ineffective hematopoiesis of the myelodysplastic syndrome. *Blood*. 105(9):3528-34 (2005)
81. Broxmeyer, H. E., S. Cooper, L. A. Lasky, and **F. de Sauvage**. 2005. Identification of a massive reserve of hematopoietic progenitors in mice. *Stem Cells Dev* **14**:105-10.
82. Gray, D., A. M. Jubb, D. Hogue, P. Dowd, N. Kljavin, S. Yi, W. Bai, G. Frantz, Z. Zhang, H. Koeppen, **F. J. de Sauvage**, and D. P. Davis. 2005. Maternal embryonic leucine zipper kinase/murine protein serine-threonine kinase 38 is a promising therapeutic target for multiple cancers. *Cancer Res* **65**:9751-61.
83. Khader, S. A., J. E. Pearl, K. Sakamoto, L. Gilmartin, G. K. Bell, D. M. Jelley-Gibbs, N. Ghilardi, **F. de Sauvage**, and A. M. Cooper. 2005. IL-23 compensates for the absence of IL-12p70 and is essential for the IL-17 response during tuberculosis but is dispensable for protection and antigen-specific IFN-gamma responses if IL-12p70 is available. *J Immunol* **175**:788-95.
84. Merchant, M., M. Evangelista, S. M. Luoh, G. D. Frantz, S. Chalasani, R. A. Carano, M. van Hoy, J. Ramirez, A. K. Ogasawara, L. M. McFarland, E. H. Filvaroff, D. M. French, and **F. J. de Sauvage**. 2005. Loss of the serine/threonine kinase fused results in postnatal growth defects and lethality due to progressive hydrocephalus. *Mol Cell Biol* **25**:7054-68.
85. Villarino, A. V., J. Larkin, 3rd, C. J. Saris, A. J. Caton, S. Lucas, T. Wong, **F. J. de Sauvage**, and C. A. Hunter. 2005. Positive and negative regulation of the IL-27 receptor during lymphoid cell activation. *J Immunol* **174**:7684-91.
86. Khader, S. A., S. Partida-Sanchez, G. Bell, D. M. Jelley-Gibbs, S. Swain, J. E. Pearl, N. Ghilardi, **F. J. de Sauvage**, F. E. Lund, and A. M. Cooper. 2006. Interleukin 12p40 is required for dendritic cell migration and T cell priming after Mycobacterium tuberculosis infection. *J Exp Med* **203**:1805-15.
87. Rosas, L. E., A. A. Satoskar, K. M. Roth, T. L. Keiser, J. Barbi, C. Hunter, **F. J. de Sauvage**, and A. R. Satoskar. 2006. Interleukin-27R (WSX-1/T-cell cytokine receptor) gene-deficient mice display enhanced resistance to leishmania donovani infection but develop severe liver immunopathology. *Am J Pathol* **168**:158-69.
88. Villarino, A. V., J. S. Stumhofer, C. J. Saris, R. A. Kastelein, **F. J. de Sauvage**, and C. A. Hunter. 2006. IL-27 limits IL-2 production during Th1 differentiation. *J Immunol* **176**:237-47.
89. Wang, X. D., C. C. Leow, J. Zha, Z. Tang, Z. Modrusan, F. Radtke, M. Aguet, **F. J. de Sauvage**, and W. Q. Gao. 2006. Notch signaling is required for normal prostatic epithelial cell proliferation and differentiation. *Dev Biol* **290**:66-80.
90. Batten, M., J. Li, S. Yi, N. M. Kljavin, D. M. Danilenko, S. Lucas, J. Lee, **F. J. de Sauvage**, and N. Ghilardi. (2006). Interleukin 27 limits autoimmune encephalomyelitis by suppressing the development of interleukin 17-producing T cells. *Nat Immunol* **7**:929-36.
91. McCallum SA, Bazan JF, Merchant M, Yin J, Pan B, **de Sauvage FJ**, Fairbrother WJ. (2006) Structure of SAP18: a ubiquitin fold in histone deacetylase complex assembly. *Biochemistry*. 45(39):11974-82.

92. Evangelista M, Tian H, **de Sauvage FJ**. (2006) The hedgehog signaling pathway in cancer. *Clin Cancer Res.* 12(20):5924-8.
93. Ridgway J, Zhang G, Wu Y, Stawicki S, Liang WC, Chanthery Y, Kowalski J, Watts RJ, Callahan C, Kasman I, Singh M, Chien M, Tan C, Hongo JA, **de Sauvage F**, Plowman G, Yan M. (2006) Inhibition of Dll4 signalling inhibits tumour growth by deregulating angiogenesis. *Nature.* 444(7122):1083-7.
94. Rubin LL, **de Sauvage FJ**. Targeting the Hedgehog pathway in cancer. *Nat Rev Drug Discov.* (2006) Dec;5(12):1026-33.
95. J.G. Perrigoue, J. Li, C. Zaph, M. Goldschmidt, P. Scott, **F.J. de Sauvage**, E. J. Pearce, N. Ghilardi, and D. Artis (2007) IL-31–IL-31R interactions negatively regulate type 2 inflammation in the lung *J. Exp. Med* 204(3):481-7
96. H. E. Broxmeyer, J. Li, G. Hangoca, S. Cooper, W. Tao, C. Mantela, B. Graham-Evansa, N. Ghilardi, and **F. J. de Sauvage** (2007) Regulation of myeloid progenitor cell proliferation/survival by IL-31 receptor and IL-31 *Experimental Hematology* 35:78-86
97. A.P. Beigneux, B. S. J. Davies, P. Gin, M. M. Weinstein, E. Farber, X. Qiao, F. Peale, S. Bunting, R. L. Walzem, J. S. Wong, W. S. Blaner, Z.-M. Ding, K. Melford, N. Wongsiriroj, X. Shu, **F. de Sauvage**, R. O. Ryan, L. G. Fong, A. Bensadoun, and S. G. Young (2007). Glycosylphosphatidylinositol-anchored high density lipoprotein-binding protein 1 plays a critical role in the lipolytic processing of chylomicrons *Cell Metabolism* 4:279-291
98. Peters BA, Kan Z, Sebisanoovic D, Pujara K, Wang Z, Hong P, Chow B, Stinson J, Carlton VE, Pham TQ, Stern H, Waring P, Hillan KJ, Eberhard DA, **de Sauvage F**, Zheng J, Faham M, Seshagiri S. (2007) Highly efficient somatic-mutation identification using Escherichia coli mismatch-repair detection *Nat Methods.* 2007 Sep;4(9):713-5.
99. Batten M, Kljavin NM, Li J, Walter MJ, **de Sauvage FJ**, Ghilardi N. (2008) IL-27 Is a Potent Inducer of IL-10 but Not FoxP3 in Murine T Cells. *J Immunol.*180(5):2752-6.
100. Zheng Y, Valdez PA, Danilenko DM, Hu Y, Sa SM, Gong Q, Abbas AR, Modrusan Z, Ghilardi N, **de Sauvage FJ**, Ouyang W. (2008) Interleukin-22 mediates early host defense against attaching and effacing bacterial pathogens. *Nat Med.* 14(3):282-9
101. Yauch RL, Gould SE, Scales SJ, Tang T, Tian H, Ahn CP, Marshall D, Fu L, Januario T, Kallop D, Nannini Pepe M, Kotkow K, Marsters JC, Rubin LL, **de Sauvage FJ**. (2008) A paracrine requirement for hedgehog signalling in cancer. *Nature.* 2008 Sep 18;455(7211):406-10.
102. Evangelista M, Lim TY, Lee J, Parker L, Ashique A, Peterson AS, Ye W, Davis DP, **de Sauvage FJ**. Kinome siRNA screen identifies regulators of ciliogenesis and hedgehog signal transduction. *Sci Signal.* 1(39):ra7. (2008)
103. Tiedt R, Coers J, Ziegler S, Wiestner A, Hao-Shen H, Bornmann C, Schenkel J, Karakhanova S, **de Sauvage FJ**, Jackson CW, Skoda RC. Pronounced thrombocytosis in transgenic mice expressing reduced levels of Mpl in platelets and terminally differentiated megakaryocytes. *Blood.*113(8):1768-77. (2009)
104. Tian H, Callahan CA, Dupree KJ, Darbonne WC, Ahn CP, Scales SJ, **de Sauvage FJ**. Hedgehog signaling is restricted to the stromal compartment during pancreatic carcinogenesis. *Proc Natl Acad Sci U S A.* (2009)
105. Polson AG, Calemine-Fenaux J, Chan P, Chang W, Christensen E, Clark S, **de Sauvage FJ**, Eaton D, Elkins K, Elliott JM, Frantz G, Fuji RN, Gray A, Harden K, Ingle GS, Kljavin NM, Koeppen H, Nelson C, Prabhu S, Raab H, Ross S, Stephan JP, Scales SJ, Spencer SD, Vandlen R, Wranik B, Yu SF, Zheng B, Ebens A. Antibody-Drug Conjugates for the Treatment of Non-Hodgkin's Lymphoma: Target and Linker-Drug Selection. *Cancer Res.* 2009 Mar 3.
106. Scales SJ, **de Sauvage FJ**. (2009) Mechanisms of Hedgehog pathway activation in cancer and implications for therapy. *Trends Pharmacol Sci.* 2009 Jun;30(6):303-12



107. Leow CC, Wang BE, Ross J, Chan SM, Zha J, Carano RA, Frantz G, Shen MM, **de Sauvage FJ**, Gao WQ. (2009) Prostate-specific Klf6 inactivation impairs anterior prostate branching morphogenesis through increased activation of the Shh pathway. *J Biol Chem*. 2009 Jul 31;284(31):21057-65.
108. Hofmann I, Stover EH, Cullen DE, Mao J, Morgan KJ, Lee BH, Kharas MG, Miller PG, Cornejo MG, Okabe R, Armstrong SA, Ghilardi N, Gould S, **de Sauvage FJ**, McMahon AP, Gilliland DG. (2009) Hedgehog signaling is dispensable for adult murine hematopoietic stem cell function and hematopoiesis. *Cell Stem Cell*. 2009 Jun 5;4(6):559-67.
109. Bosanac I, Maun HR, Scales SJ, Wen X, Lingel A, Bazan JF, **de Sauvage FJ**, Hymowitz SG, Lazarus RA. (2009) The structure of SHH in complex with HHIP reveals a recognition role for the Shh pseudo active site in signaling. *Nat Struct Mol Biol*. 2009 Jul;16(7):691-7.
110. Endoh-Yamagami S, Evangelista M, Wilson D, Wen X, Theunissen JW, Phamluong K, Davis M, Scales SJ, Solloway MJ, **de Sauvage FJ**, Peterson AS. (2009) The mammalian Cos2 homolog Kif7 plays an essential role in modulating Hh signal transduction during development. *Curr Biol*. 2009 Aug 11;19(15):1320-6.
111. Theunissen JW, **de Sauvage FJ**. (2009) Paracrine Hedgehog signaling in cancer. *Cancer Res*. 2009 Aug 1;69(15):6007-10.
112. Jaiswal BS, Janakiraman V, Kljavin NM, Chaudhuri S, Stern HM, Wang W, Kan Z, Dbouk HA, Peters BA, Waring P, Dela Vega T, Kenski DM, Bowman KK, Lorenzo M, Li H, Wu J, Modrusan Z, Stinson J, Eby M, Yue P, Kaminker JS, **de Sauvage FJ**, Backer JM, Seshagiri S. Somatic mutations in p85alpha promote tumorigenesis through class IA PI3K activation. *Cancer Cell*. 2009 Dec 8;16(6):463-74.
113. Yauch RL, Dijkgraaf GJ, Alicke B, Januario T, Ahn CP, Holcomb T, Pujara K, Stinson J, Callahan CA, Tang T, Bazan JF, Kan Z, Seshagiri S, Hann CL, Gould SE, Low JA, Rudin CM, **de Sauvage FJ**. Smoothed mutation confers resistance to a Hedgehog pathway inhibitor in medulloblastoma. *Science*. 2009 Oct 23;326(5952):572-4.
114. Von Hoff DD, LoRusso PM, Rudin CM, Reddy JC, Yauch RL, Tibes R, Weiss GJ, Borad MJ, Hann CL, Brahmer JR, Mackey HM, Lum BL, Darbonne WC, Marsters JC Jr, **de Sauvage FJ**, Low JA. Inhibition of the hedgehog pathway in advanced basal-cell carcinoma. *N Engl J Med*. 2009 Sep 17;361(12):1164-72.
115. Rudin CM, Hann CL, Latterra J, Yauch RL, Callahan CA, Fu L, Holcomb T, Stinson J, Gould SE, Coleman B, LoRusso PM, Von Hoff DD, **de Sauvage FJ**, Low JA. Treatment of medulloblastoma with hedgehog pathway inhibitor GDC-0449. *N Engl J Med*. 2009 Sep 17;361(12):1173-8.
116. Bazan JF, **de Sauvage FJ**. (2009) Structural ties between cholesterol transport and morphogen signaling. *Cell*. 2009 Sep 18;138(6):1055-6.
117. Jaiswal BS, Janakiraman V, Kljavin NM, Chaudhuri S, Stern HM, Wang W, Kan Z, Dbouk HA, Peters BA, Waring P, Dela Vega T, Kenski DM, Bowman KK, Lorenzo M, Li H, Wu J, Modrusan Z, Stinson J, Eby M, Yue P, Kaminker JS, **de Sauvage FJ**, Backer JM, Seshagiri S. Somatic mutations in p85alpha promote tumorigenesis through class IA PI3K activation. *Cancer Cell*. 2009 Dec 8;16(6):463-74.
118. Wen X, Lai CK, Evangelista M, Hongo JA, **de Sauvage FJ**, Scales SJ. Kinetics of hedgehog-dependent full-length Gli3 accumulation in primary cilia and subsequent degradation. *Mol Cell Biol*. 2010 Apr;30(8):1910-22.
119. Kan Z, Jaiswal BS, Stinson J, Janakiraman V, Bhatt D, Stern HM, Yue P, Haverty PM, Bourgon R, Zheng J, Moorhead M, Chaudhuri S, Tomsho LP, Peters BA, Pujara K, Cordes S, Davis DP, Carlton VE, Yuan W, Li L, Wang W, Eigenbrot C, Kaminker JS, Eberhard DA, Waring P, Schuster SC, Modrusan Z, Zhang Z, Stokoe D, **de Sauvage FJ**, Faham M, Seshagiri S. Diverse somatic mutation patterns and pathway alterations in human cancers. *Nature*. 2010 Aug 12;466(7308):869-73.
120. Reiter JF, **de Sauvage FJ**. Vive la science! Vive le hérisson! *EMBO Rep*. 2010 Aug;11(8):566-8.

121. Tang T, Li L, Tang J, Li Y, Lin WY, Martin F, Grant D, Solloway M, Parker L, Ye W, Forrest W, Ghilardi N, Oravec T, Platt KA, Rice DS, Hansen GM, Abuin A, Eberhart DE, Godowski P, Holt KH, Peterson A, Zambrowicz BP, **de Sauvage FJ**. A mouse knockout library for secreted and transmembrane proteins. *Nat Biotechnol*. 2010 Jul;28(7):749-55.
122. Lee W, Jiang Z, Liu J, Haverty PM, Guan Y, Stinson J, Yue P, Zhang Y, Pant KP, Bhatt D, Ha C, Johnson S, Kennemer MI, Mohan S, Nazarenko I, Watanabe C, Sparks AB, Shames DS, Gentleman R, **de Sauvage FJ**, Stern H, Pandita A, Ballinger DG, Drmanac R, Modrusan Z, Seshagiri S, Zhang Z. The mutation spectrum revealed by paired genome sequences from a lung cancer patient. *Nature*. 2010;465(7297):473-7.
123. Maun HR, Wen X, Lingel A, **de Sauvage FJ**, Lazarus RA, Scales SJ, Hymowitz SG. The hedgehog pathway antagonist 5E1 binds hedgehog at the pseudo-active site. *J Biol Chem*. 2010 May 26.
124. Castanedo GM, Wang S, Robarge KD, Blackwood E, Burdick D, Chang C, Dijkgraaf GJ, Gould S, Gunzner J, Guichert O, Halladay J, Khojasteh C, Lee L, Marsters JC Jr, Murray L, Peterson D, Plise E, Salphati L, **de Sauvage FJ**, Wong S, Sutherlin DP. Second generation 2-pyridyl biphenyl amide inhibitors of the hedgehog pathway. *Bioorg Med Chem Lett*. 2010 Nov 15;20(22):6748-53.
125. Seidel K, Ahn CP, Lyons D, Nee A, Ting K, Brownell I, Cao T, Carano RA, Curran T, Schober M, Fuchs E, Joyner A, Martin GR, **de Sauvage FJ**, Klein OD. Hedgehog signaling regulates the generation of ameloblast progenitors in the continuously growing mouse incisor. *Development*. 2010 Nov;137(22):3753-61.
126. Low JA, **de Sauvage FJ**. Clinical experience with hedgehog pathway inhibitors. *J Clin Oncol*. 2010 Dec 20;28(36):5321-6.
127. Batten M, Ramamoorthi N, Kljavin NM, Ma CS, Cox JH, Dengler HS, Danilenko DM, Caplazi P, Wong M, Fulcher DA, Cook MC, King C, Tangye SG, **de Sauvage FJ**, Ghilardi N. IL-27 supports germinal center function by enhancing IL-21 production and the function of T follicular helper cells. *J Exp Med*. 2010 Dec 20;207(13):2895-906.
128. Dijkgraaf GJ, Aliche B, Weinmann L, Januario T, West K, Modrusan Z, Burdick D, Goldsmith R, Robarge K, Sutherlin D, Scales SJ, Gould SE, Yauch RL, **de Sauvage FJ**. Small molecule inhibition of GDC-0449 refractory Smoothed mutants and downstream mechanisms of drug resistance. *Cancer Res*. 2011;71(2):435-44.
129. Targeting Superficial or Nodular Basal Cell Carcinoma with Topically Formulated Small Molecule Inhibitor of Smoothed. Tang T, Tang JY, Li D, Reich M, Callahan CA, Fu L, Yauch RL, Wang F, Kotkow K, Chang KS, Shpall E, Wu A, Rubin LL, Marsters JC Jr, Epstein EH Jr, Caro I, **de Sauvage FJ**. *Clin Cancer Res*. 2011 May 10.
130. TMEFF2 Is a PDGF-AA Binding Protein with Methylation-Associated Gene Silencing in Multiple Cancer Types Including Glioma. Lin K, Taylor JR Jr, Wu TD, Gutierrez J, Elliott JM, Vernes JM, Koeppe H, Phillips HS, **de Sauvage FJ**, Meng YG. *PLoS One*. 2011 Apr 29;6(4):e18608.
131. Chen W, Tang T, Eastham-Anderson J, Dunlap D, Aliche B, Nannini M, Gould S, Yauch R, Modrusan Z, DuPree KJ, Darbonne WC, Plowman G, **de Sauvage FJ**, Callahan CA. Canonical hedgehog signaling augments tumor angiogenesis by induction of VEGF-A in stromal perivascular cells. *Proc Natl Acad Sci U S A*. 2011 Jun 7;108(23):9589-94.
132. Wong H, Aliche B, West KA, Pacheco P, La H, Januario T, Yauch RL, **de Sauvage FJ**, Gould SE. Pharmacokinetic-pharmacodynamic analysis of vismodegib in preclinical models of mutational and ligand-dependent Hedgehog pathway activation. *Clin Cancer Res*. 2011 Jul 15;17(14):4682-92.
133. Stinson S, Lackner MR, Adai AT, Yu N, Kim HJ, O'Brien C, Spoerke J, Jhunjunwala S, Boyd Z, Januario T, Newman RJ, Yue P, Bourgon R, Modrusan Z, Stern HM, Warming S, **de Sauvage FJ**, Amler L, Yeh RF, Dornan D. TRPS1 targeting by miR-221/222 promotes the epithelial-to-mesenchymal transition in breast cancer. *Sci Signal*. 2011 Jun 14;4(177):ra41.

134. Metcalfe C, **de Sauvage FJ**. Hedgehog Fights Back: Mechanisms of Acquired Resistance against Smoothened Antagonists. *Cancer Res.* 2011 Aug 1;71(15):5057-61.
135. Stinson S, Lackner MR, Adai AT, Yu N, Kim HJ, O'Brien C, Spoerke J, Jhunjunwala S, Boyd Z, Januario T, Newman RJ, Yue P, Bourgon R, Modrusan Z, Stern HM, Warming S, **de Sauvage FJ**, Amler L, Yeh RF, Dornan D. miR-221/222 Targeting of Trichorhinophalangeal 1 (TRPS1) Promotes Epithelial-to-Mesenchymal Transition in Breast Cancer. *Sci Signal.* 2011 Aug 16;4(186):pt5.
136. Tian H., Biehs B., Warming S., Leong K.G., Rangell L., Klein O.D. & **de Sauvage F.J.** A reserve stem cell population in small intestine renders *Lgr5*-positive cells dispensable *Nature*, 2011 Sep 18;478(7368):255-9.
137. Sharpe HJ, **de Sauvage FJ.**, Signaling: An oxysterol ligand for Smoothened. *Nat Chem Biol.* 2012;8(2):139-40.
138. Jiang Z, Jhunjunwala S, Liu J, Haverty PM, Kennemer MI, Guan Y, Lee W, Carnevali P, Stinson J, Johnson S, Diao J, Yeung S, Jubb A, Ye W, Wu TD, Kapadia SB, **de Sauvage FJ**, Gentleman RC, Stern HM, Seshagiri S, Pant KP, Modrusan Z, Ballinger DG, Zhang Z., The effects of hepatitis B virus integration into the genomes of hepatocellular carcinoma patients. *Genome Res.* 2012 Apr;22(4):593-601. Epub 2012 Jan 20.
139. Brais RJ, Davies SE, O'Donovan M, Simpson BW, Cook N, Darbonne WC, Chilcott S, Lolkema MP, Neesse A, Lockley M, Corrie PG, Jodrell DI, Praseedom RK, Huguet EL, Jah A, Jamieson NV, **de Sauvage FJ**, Tuveson DA, Carroll NR., Direct histological processing of EUS biopsies enables rapid molecular biomarker analysis for interventional pancreatic cancer trials. *Pancreatology.* 2012 Jan;12(1):8-15.
140. Seshagiri S, Stawiski EW, Durinck S, Modrusan Z, Storm EE, Conboy CB, Chaudhuri S, Guan Y, Janakiraman V, Jaiswal BS, Guillory J, Ha C, Dijkgraaf GJ, Stinson J, Gnad F, Huntley MA, Degenhardt JD, Haverty PM, Bourgon R, Wang W, Koeppen H, Gentleman R, Starr TK, Zhang Z, Largaespada DA, Wu TD, **de Sauvage FJ.**, Recurrent R-spondin fusions in colon cancer. *Nature.* 2012 Aug 30;488(7413):660-4.
141. Liu J, Lee W, Jiang Z, Chen Z, Jhunjunwala S, Haverty PM, Gnad F, Guan Y, Gilbert H, Stinson J, Klijn C, Guillory J, Bhatt D, Vartanian S, Walter K, Chan J, Holcomb T, Dijkgraaf P, Johnson S, Koeman J, Minna JD, Gazdar AF, Stern HM, Hoeflich KP, Wu TD, Settleman J, **de Sauvage FJ**, Gentleman RC, Neve RM, Stokoe D, Modrusan Z, Seshagiri S, Shames DS, Zhang Z. Genome and transcriptome sequencing of lung cancers reveal diverse mutational and splicing events. *Genome Res.* 2012 Oct 2. [Epub ahead of print]
142. Rudin CM, Durinck S, Stawiski EW, Poirier JT, Modrusan Z, Shames DS, Bergbower EA, Guan Y, Shin J, Guillory J, Rivers CS, Foo CK, Bhatt D, Stinson J, Gnad F, Haverty PM, Gentleman R, Chaudhuri S, Janakiraman V, Jaiswal BS, Parikh C, Yuan W, Zhang Z, Koeppen H, Wu TD, Stern HM, Yauch RL, Huffman KE, Paskulin DD, Illei PB, Varella-Garcia M, Gazdar AF, **de Sauvage FJ**, Bourgon R, Minna JD, Brock MV, Seshagiri S. Comprehensive genomic analysis identifies SOX2 as a frequently amplified gene in small-cell lung cancer. *Nat Genet.* 2012 Oct;44(10):1111-6.
143. Metcalfe C, **de Sauvage FJ**. A tumor-specific stem cell. *Nat Genet.* 2013 Jan;45(1):7-9.
144. Plaks V, Brenot A, Lawson DA, Linnemann JR, Van Kappel EC, Wong KC, **de Sauvage F**, Klein OD, Werb Z. *Lgr5*-expressing cells are sufficient and necessary for postnatal mammary gland organogenesis. *Cell Rep.* 2013 Jan 31;3(1):70-8
145. Jaiswal BS, Kljavin NM, Stawiski EW, Chan E, Parikh C, Durinck S, Chaudhuri S, Pujara K, Guillory J, Edgar KA, Janakiraman V, Scholz RP, Bowman KK, Lorenzo M, Li H, Wu J, Yuan W, Peters BA, Kan Z, Stinson J, Mak M, Modrusan Z, Eigenbrot C, Firestein R, Stern HM, Rajalingam K, Schaefer G, Merchant MA, Sliwkowski MX, **de Sauvage FJ**, Seshagiri S. Oncogenic ERBB3 mutations in human cancers. *Cancer Cell.* 2013 May 13;23(5):603-17.
146. Chin L, **de Sauvage F**, Egeblad M, Olive KP, Tuveson D, Weiss W. Recapitulating human cancer in a mouse. *Nat Biotechnol.* 2013 May;31(5):392-5. doi: 10.1038/nbt.2575.

147. Jaiswal BS, Kljavin NM, Stawiski EW, Chan E, Parikh C, Durinck S, Chaudhuri S, Pujara K, Guillory J, Edgar KA, Janakiraman V, Scholz RP, Bowman KK, Lorenzo M, Li H, Wu J, Yuan W, Peters BA, Kan Z, Stinson J, Mak M, Modrusan Z, Eigenbrot C, Firestein R, Stern HM, Rajalingam K, Schaefer G, Merchant MA, Sliwkowski MX, **de Sauvage FJ**, Seshagiri S. Oncogenic ERBB3 mutations in human cancers. *Cancer Cell*. 2013 May 13;23(5):603-17.
148. Junttila MR, **de Sauvage FJ**. Influence of tumour micro-environment heterogeneity on therapeutic response. *Nature*. 2013 Sep 19;501(7467):346-54.
149. Metcalfe C, Alicke B, Crow A, Lamoureux M, Dijkgraaf GJ, Peale F, Gould SE, **de Sauvage FJ**. PTEN Loss Mitigates the Response of Medulloblastoma to Hedgehog Pathway Inhibition. *Cancer Res*. 2013 Dec 1;73(23):7034-42.
150. Metcalfe C, Kljavin NM, Ybarra R, **de Sauvage FJ**. Lgr5+ Stem Cells Are Indispensable for Radiation-Induced Intestinal Regeneration. *Cell Stem Cell*. 2013 Dec 11. pii: S1934-5909(13)00499-2.
151. Ritsma L, Ellenbroek SI, Zomer A, Snippert HJ, **de Sauvage FJ**, Simons BD, Clevers H, van Rheenen J. Intestinal crypt homeostasis revealed at single-stem-cell level by in vivo live imaging. *Nature*. 2014 Mar 20;507(7492):362-5.
152. Lee GY, Haverty PM, Li L, Kljavin NM, Bourgon R, Lee J, Stern H, Modrusan Z, Seshagiri S, Zhang Z, Davis D, Stokoe D, Settleman J, **de Sauvage FJ**, Neve RM. Comparative oncogenomics identifies PSMB4 and SHMT2 as potential cancer driver genes. *Cancer Res*. 2014 Jun 1;74(11):3114-26.
153. Liu J, McClelland M, Stawiski EW, Gnad F, Mayba O, Haverty PM, Durinck S, Chen YJ, Klijn C, Jhunjhunwala S, Lawrence M, Liu H, Wan Y, Chopra V, Yaylaoglu MB, Yuan W, Ha C, Gilbert HN, Reeder J, Pau G, Stinson J, Stern HM, Manning G, Wu TD, Neve RM, **de Sauvage FJ**, Modrusan Z, Seshagiri S, Firestein R, Zhang Z. Integrated exome and transcriptome sequencing reveals ZAK isoform usage in gastric cancer. *Nat Commun*. 2014 May 8;5:3830.
154. Gould SE, Low JA, Marsters JC Jr, Robarge K, Rubin LL, **de Sauvage FJ**, Sutherlin DP, Wong H, Yauch RL. Discovery and preclinical development of vismodegib. *Expert Opin Drug Discov*. 2014 May 23:1-16.
155. Castillo D, Seidel K, Salcedo E, Ahn C, **de Sauvage FJ**, Klein OD, Barlow LA. Induction of ectopic taste buds by SHH reveals the competency and plasticity of adult lingual epithelium. *Development*. 2014 Jul 3. pii: dev.107631.
156. Büller NV, Rosekrans SL, Metcalfe C, Heijmans J, van Dop WA, Fessler E, Jansen M, Ahn C, Vermeulen JL, Florien Westendorp B, Robanus-Maandag EC, Johan Offerhaus G, Medema JP, D'Haens GR, Wildenberg ME, **de Sauvage FJ**, Muncan V, van den Brink GR. Stromal Indian Hedgehog Signaling is Required for Adenoma Formation in Mice. *Gastroenterology*. 2014 Oct 9. pii: S0016-5085(14)01202-5. doi: 10.1053/j.gastro.2014
157. Durinck S, Stawiski EW, Pavia-Jiménez A, Modrusan Z, Kapur P, Jaiswal BS, Zhang N, Toffessi-Tcheuyap V, Nguyen TT, Pahuja KB, Chen YJ, Saleem S, Chaudhuri S, Heldens S, Jackson M, Peña-Llopis S, Guillory J, Toy K, Ha C, Harris CJ, Holloman E, Hill HM, Stinson J, Rivers CS, Janakiraman V, Wang W, Kinch LN, Grishin NV, Haverty PM, Chow B, Gehring JS, Reeder J, Pau G, Wu TD, Margulis V, Lotan Y, Sagalowsky A, Pedrosa I, **de Sauvage FJ**, Brugarolas J, Seshagiri S. Spectrum of diverse genomic alterations define non-clear cell renal carcinoma subtypes. *Nat Genet*. 2015 Jan;47(1):13-21. doi: 10.1038/ng.3146.
158. Klijn C, Durinck S, Stawiski EW, Haverty PM, Jiang Z, Liu H, Degenhardt J, Mayba O, Gnad F, Liu J, Pau G, Reeder J, Cao Y, Mukhyala K, Selvaraj SK, Yu M, Zynda GJ, Brauer MJ, Wu TD, Gentleman RC, Manning G, Yauch RL, Bourgon R, Stokoe D, Modrusan Z, Neve RM, **de Sauvage FJ**, Settleman J, Seshagiri S, Zhang Z. A comprehensive transcriptional portrait of human cancer cell lines. *Nat Biotechnol*. 2015 Mar;33(3):306-12. doi: 10.1038/nbt.3080.
159. Basset-Seguín N, Sharpe HJ, **de Sauvage FJ**. Efficacy of Hedgehog pathway inhibitors in basal cell carcinoma. *Mol Cancer Ther*. 2015 Mar;14(3):633-41. doi: 10.1158/1535-7163.MCT-14-0703.

160. Tian H, Biehs B, Chiu C, Siebel CW, Wu Y, Costa M, **de Sauvage FJ**, Klein OD. Opposing activities of notch and wnt signaling regulate intestinal stem cells and gut homeostasis. *Cell Rep*. 2015 Apr 7;11(1):33-42. doi: 10.1016/j.celrep.2015.03.007.
161. Sharpe HJ, Wang W, Hannoush RN, **de Sauvage FJ**. Regulation of the oncoprotein Smoothed by small molecules. *Nat Chem Biol*. 2015 Mar 18;11(4):246-55. doi: 10.1038/nchembio.1776.
162. Sharpe HJ, Pau G, Dijkgraaf GJ, Basset-Seguín N, Modrusan Z, Januario T, Tsui V, Durham AB, Dlugosz AA, Haverty PM, Bourgon R, Tang JY, Sarin KY, Dirix L, Fisher DC, Rudin CM, Sofen H, Migden MR, Yauch RL, **de Sauvage FJ**. Genomic analysis of smoothed inhibitor resistance in Basal cell carcinoma. *Cancer Cell*. 2015 Mar 9;27(3):327-41. doi: 10.1016/j.ccell.2015.02.001.
163. Gould SE, Junttila MR, **de Sauvage FJ**. Translational value of mouse models in oncology drug development. *Nat Med*. 2015 May;21(5):431-9. doi: 10.1038/nm.3853.
164. Catenacci DV, Junttila MR, Karrison T, Bahary N, Horiba MN, Nattam SR, Marsh R, Wallace J, Kozloff M, Rajdev L, Cohen D, Wade J, Sleckman B, Lenz HJ, Stiff P, Kumar P, Xu P, Henderson L, Takebe N, Salgia R, Wang X, Stadler WM, **de Sauvage FJ**, Kindler HL. Randomized Phase Ib/II Study of Gemcitabine Plus Placebo or Vismodegib, a Hedgehog Pathway Inhibitor, in Patients With Metastatic Pancreatic Cancer. *J Clin Oncol*. 2015 Dec 20;33(36):4284-92. doi: 10.1200/JCO.2015.62.8719.
165. Storm EE, Durinck S, de Sousa e Melo F, Tremayne J, Kljavin N, Tan C, Ye X, Chiu C, Pham T, Hongo JA, Bainbridge T, Firestein R, Blackwood E, Metcalfe C, Stawiski EW, Yauch RL, Wu Y, **de Sauvage FJ**. Targeting PTPRK-RSPO3 colon tumours promotes differentiation and loss of stem-cell function. *Nature*. 2016 Jan 7;529(7584):97-100. doi: 10.1038/nature16466.
166. Bonilla X, Parmentier L, King B, Bezrukov F, Kaya G, Zoete V, Seplyarskiy VB, Sharpe HJ, McKee T, Letourneau A, Ribaux PG, Popadin K, Basset-Seguín N, Ben Chaabene R, Santoni FA, Andrianova MA, Guipponi M, Garieri M, Verdán C, Grosdemange K, Sumara O, Eilers M, Aifantis I, Michelin O, **de Sauvage FJ**, Antonarakis SE, Nikolaev SI. Genomic analysis identifies new drivers and progression pathways in skin basal cell carcinoma. *Nat Genet*. 2016 Apr;48(4):398-406. doi: 10.1038/ng.3525. PMID: 26950094
167. Bueno R, Stawiski EW, Goldstein LD, Durinck S, De Rienzo A, Modrusan Z, Gnad F, Nguyen TT, Jaiswal BS, Chiriac LR, Sciaranghella D, Dao N, Gustafson CE, Munir KJ, Hackney JA, Chaudhuri A, Gupta R, Guillory J, Toy K, Ha C, Chen YJ, Stinson J, Chaudhuri S, Zhang N, Wu TD, Sugarbaker DJ, **de Sauvage FJ**, Richards WG, Seshagiri S. Comprehensive genomic analysis of malignant pleural mesothelioma identifies recurrent mutations, gene fusions and splicing alterations. *Nat Genet*. 2016 Apr;48(4):407-16. doi: 10.1038/ng.3520. PMID: 26928227
168. Tetteh PW, Basak O, Farin HF, Wiebrands K, Kretschmar K, Begthel H, van den Born M, Korving J, **de Sauvage F**, van Es JH, van Oudenaarden A, Clevers H. Replacement of Lost Lgr5-Positive Stem Cells through Plasticity of Their Enterocyte-Lineage Daughters. *Cell Stem Cell*. 2016 Feb 4;18(2):203-13. doi: 10.1016/j.stem.2016.01.001. PMID: 26831517

Book Chapters
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Octave, J.-N., Macq, A.F., **de Sauvage, F.**, Maloteaux, J.M., Laterre, E.C. & Trouet, A. Construction of cDNA libraries from post mortem human brain in *Protides of Biol. Fluids* 35 (H. Peeters, Ed.), 67-70. (1987)

Octave, J.-N., **de Sauvage, F.**, Macq, A.F. & Maloteaux, J.M. Marqueurs génétiques d'affections neuro-psychiatriques. *Louvain Medical* 107, 305-314. (1988)

Octave, J.-N., **de Sauvage, F.**, Macq, A.F., Maloteaux, J.M., Vitek, M.P., Blume, A.J., Brucher, J.M., De Barys, T., Trouet, A. & Laterre, E.C. Cloning of the beta amyloid peptide gene in *Alzheimer's Disease in Genetics and Alzheimer's Disease* (Sinet, P.M., Lamour, Y. & Christen, Y., Eds.), Springer-Verlag, 142-150. (1988)

**de Sauvage, F.**, Macq, A.F., Maloteaux, J.M. & Octave, J.-N. Cloning of different amyloid peptide precursors from brain of patients with Alzheimer's disease in *Biological Markers of Alzheimer's Disease* (Boller, Katzman, Rascol, Signoret & Christen, Eds.), Springer-Verlag, 123-129. (1989)

Austin Gurney and **Frederic J. de Sauvage** Structure of Thrombopoietin and the Thrombopoietin Gene p 181-188 in *Thrombopoiesis and Thrombopoietins: Molecular, Cellular, Preclinical and Clinical Biology* (D.J. Kuter, P. Hunt, W. Sheridan, and D. Zucker-Franklin Eds) Humana Press Inc., Totowa, NJ. (1996)

**Frederic J. de Sauvage** and Mark W. Moore. Genetic manipulation of Thrombopoietin In Vivo p 349-356 in *Thrombopoiesis and Thrombopoietins: Molecular, Cellular, Preclinical and Clinical Biology* (D.J. Kuter, P. Hunt, W. Sheridan, and D. Zucker-Franklin Eds) Humana Press Inc., Totowa, NJ. (1996)

**de Sauvage F. J.** and A. Rosenthal A. Smoothened. In Wiley Encyclopedia of Molecular Medicine, Vol. 5 John Wiley & Sons, Inc., New York pages 2938-2940 (2002)

**de Sauvage FJ.** Rubin LL. Modulating the hedgehog pathway in diseases in *HEDGEHOG-GLI SIGNALING IN HUMAN DISEASE*. page 210-214. 2006

Selected US Patents
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1. Craig Crowley, Frederic J de Sauvage, Dan L Eaton, Allen Ebens, Andrew Polson, Victoria Smith: Compositions and methods for the treatment of tumor of hematopoietic origin. Genentech Oct, 27 2005: US 20050238650
2. Frederic J de Sauvage, Dan L Eaton, Allen J Ebens, Andrew Polson, Victoria Smith, Suzie J Scales, Gladys Ingle: Compositions and methods for the treatment of tumor of hematopoietic origin. Genentech Jul, 10 2008: US 20080166294
3. Frederic J de Sauvage, Dan L Eaton, Allen J Ebens, Andrew Polson, Victoria Smith, Suzie J Scales: Compositions and Methods for the Treatment of Tumor of Hematopoietic Origin. Genentech Nov, 22 2007: US 20070269446
4. Kristi Rae Bollinger, Katherin E Combs, Jaime-Jo Cunningham, Ling Ling Culbertson, Frederic J de Sauvage, Joel A Edwards, Leslie Jane Green, Rosemary Girgis, Allison Anne Byers Horner, Dina Rebecca McLain, Charles Montgomery, Laurie Jeanette Minze, Bobby Joe Payne, Heidi Phillips, Trac Ellen Willis Sevaux, Zheng-Zheng Shi, Mary Jean Sparks, Joy Anne Stala, Tracy Tzu-Ling Tang, Teresa Gail Townsend, Peter Vogel: Novel Gene Disruptions, Compositions and Methods Relating Thereto. Genentech Dec, 18 2008: US 20080311107
5. Nico P Ghilardi, Frederic J de Sauvage, Audrey Goddard, Paul J Godowski, J Christopher Grimaldi, Austin Gurney, William I Wood: Nucleic acid encoding novel type-1 cytokine receptor GLM-R. Genentech Dec, 4 2007: US 7303896
6. Craig Crowley, Frederic J de Sauvage, Dan L Eaton, Allen Ebens JR, Andrew Polson, Victoria Smith: Compositions and methods for the treatment of tumor of hematopoietic origin. Feb, 24 2011: US 20110045005
7. Frederic J de Sauvage, Hua Tian: Method for using BOC/CDO to modulate hedgehog signaling. Genentech Dec, 1 2009: US 7625759
8. Craig Crowley, Frederic J de Sauvage, Dan L Eaton, Allen Ebens JR, Andrew Polson, Victoria Smith: Compositions and methods for the treatment of tumor of hematopoietic origin. Feb, 26 2009: US 20090053226
9. Frederic J de Sauvage, Arnon Rosenthal, Donna M Stone: Vertebrate smoothed proteins. Genentech Nov, 23 1999: US 5990281
10. Dan L Eaton, Frederic J de Sauvage: Hybridization and amplification of nucleic acids encoding mpl ligand. Genentech Nov, 3 1998: US 5830647
11. Craig Crowley, Frederic J de Sauvage, Dan L Eaton, Allen Ebens Jr, Kristi Elkins, Jo-Anne S Hongo, Jagath Reddy Junutula, Andrew Polson, Sarajane Ross, Victoria Smith, Richard L Vandlen, Bing Zheng: Compositions and methods for the treatment of tumor of hematopoietic. Mar, 24 2011: US 20110070243
12. Craig Crowley, Frederic J de Sauvage, Dan L Eaton, Allen Ebens JR, Jo-Anne S Hongo, Andrew Polson, Sarajane Ross, Victoria Smith, Richard L Vandlen: Compositions and methods for the treatment of tumor of hematopoietic origin. Feb, 24 2011: US 20110042260
13. Craig Crowley, Frederic J de Sauvage, Dan L Eaton, Allen Ebens JR, Kristi Elkins, Jo-Anne S Hongo, Jagath Reddy Junutula, Andrew Polson, Sarajane Ross, Victoria Smith, Richard L Vandlen, Bing Zheng: Compositions and Methods for the Treatment of Tumor of Hematopoietic Origin. Genentech Mar, 12 2009: US 20090068178
14. Jane Brennan, Frederic J de Sauvage, Weilan Ye, Joel A Edwards, Wenhui Huang, Charles Montgomery, Bobby Joe Payne, Zheng-Zheng Shi, Mary Jean Sparks, Peter Vogel: Novel Gene Disruptions, Compositions and Methods Relating Thereto. Genentech Jul, 3 2008: US 20080160034
15. Frederic J de Sauvage, Iqbal Grewal, Austin L Gurney: Modulation of T cell differentiation for the treatment of T helper cell mediated diseases. Genentech Jul, 1 2008: US 7393532

16. Craig Crowley, Frederic J de Sauvage, Dan L Eaton, Allen Ebens, Jo-Anne S Hongo, Andrew Polson, Sarajane Ross, Victoria Smith, Richard L Vandlen: Compositions and methods for the treatment of tumor of hematopoietic origin. Genentech Sep, 6 2007: US 20070207142
17. Wesley Chang, Dan L Eaton, Allen Ebens, Frederic J de Sauvage, Gretchen Frantz, Jo-Anne Hongo, Hartmut Koeppen, Andrew Polson, Victoria Smith: Compositions and methods for the treatment of tumor of hematopoietic origin. Genentech Oct, 13 2005: US 20050226869
18. Dan L Eaton, Frederic J De Sauvage: Mpl ligand (thrombopoietin), active fragments thereof, and fusion proteins and compositions comprising mpl ligand and other cytokines. Genentech Jun, 5 2012: US 8193323
19. Dan L Eaton, Frederic J De Sauvage: Method of treatment of thrombocytopenia or risk thereof using MPL ligand (thrombopoietin), variants, and fragments thereof. Genentech May, 15 2012: US 8178107
20. Dan L Eaton, Frederic J De Sauvage: Mpl ligand. Genentech Aug, 14 2012: US 8241900
21. Dan L Eaton, Frederic J De Sauvage: Nucleic acids encoding MPL ligand (thrombopoietin), variants, and fragments thereof. Genentech Jun, 5 2012: US 8192955
22. Wesley Chang, Frederic J de Sauvage, Dan L Eaton, Allen J Ebens Jr, Gretchen Frantz, Jo-Anne S Hongo, Hartmut Koeppen, Andrew Polson, Victoria Smith: Compositions and methods for the treatment of tumor of hematopoietic origin. Genentech Feb, 15 2011: US 7888478
23. Dan L Eaton, Frederic J de Sauvage: Monoclonal antibody to human thrombopoietin. Genentech Oct, 2 2012: US 8278099
24. Dan L Eaton, Frederic J de Sauvage: Mpl ligand (thrombopoietin), nucleic acids encoding such, and methods of treatment using mpl ligand. Genentech Apr, 3 2012: US 8147844
25. Frederic J de Sauvage, Gretchen Frantz, Charles Montgomery, Franklin Peale, Zheng-Zheng Shi, Mary Jean Sparks: Gene disruptions, compositions and methods relating thereto. Genentech Apr, 26 2011: US 7931902
26. Frederic J de Sauvage, Gerrit JP Dijkgraaf, Thomas Januario, Robert L Yauch: Mutant smoothed and methods of using the same. Curis Nov, 8 2012: US 20120282259
27. Stephen Jay Anderson, Jane Brennan, Frederic J de Sauvage, Zhiyong Ding, Joel Edwards, Nelda A Fikes, Wenhua Huang, Wenjun Ouyang, Carolina Rangel, Mamta Sangha, Zheng-Zheng Shi, Mary Jean Sparks, Joseph Trackey, Melissa Vetter, Ching-Yun Wang, Jessica Woodings: Novel PRO1199 gene disruptions, and methods relating thereto. Jul, 5 2012: US 20120174239
28. Frederic J de Sauvage, Hua Tian: Method of Diagnosing the presence of a tumor in a mammal by assessing CDO expression level. Curis May, 24 2012: US 20120128585
29. Frederic J de Sauvage: Mutant smoothed and methods of using the same. Genentech Feb, 16 2012: US 20120039893
30. Kristi Rae Bollinger, Katherin E Combs, Jaime-Jo Cunningham, Ling Ling Culbertson, Frederic J de Sauvage, Joel Edwards, Leslie Jane Green, Rosemary Girgis, Allison Anne Byers Horner, Dina Rebecca McLain, Charles Montgomery, Laurie Jeanette Minze, Bobby Joe Payne, Heidi Phillips, Tracy Ellen Willis Sevaux, Zheng-Zheng Shi, Mary Jean Sparks, Joy Anne Stala, Tracy Tzu-Ling Tang, Teresa Gail Townsend, Peter Vogel: Methods of identifying agents that modulate phenotypes related to disruptions, of a gene encoding PRO235 polypeptide. Jan, 5 2012: US 20120005766
31. Alexander R ABBAS, Nico P Ghilardi, Zora Modrusan, Dimitry M Danilenko, Frederic J De Sauvage, Wenjun Ouyang, Patricia A Valdez, Yan Zheng: Methods for treatment of microbial disorders. Nov, 17 2011: US 20110280828



32. Wesley Chang, Frederic J de Sauvage, Dan L Eaton, Allen J Ebens JR, Gretchen Frantz, Jo-Anne S Hongo, Hartmut Koeppen, Andrew Polson, Victoria Smith: Compositions and methods for the treatment of tumor of hematopoietic origin. Nov, 3 2011: US 20110268657
33. Craig Crowley, Frederic J de Sauvage, Dan L Eaton, Allen Ebens JR, Kristi Elkins, Jo-Anne S Hongo, Jagath Reddy Juntula, Andrew Polson, Sarajane Ross, Victoria Smith, Richard L Vandlen, Bing Zheng: Compositions and methods for the treatment of tumor of hematopoietic origin. Aug, 25 2011: US 20110206658
34. Frederic J de Sauvage, Iqbal Grewal, Austin L Gurney: Modulation of T cell Differentiation for the treatment of T helper cell mediated diseases. Genentech Apr, 28 2011: US 20110097325
35. Allison Anne Byers Horner, Catherine Batac Clarke, Katherin E Combs, Frederic J de Sauvage, Joel Edwards, Paul Godowski, Deanna Grant Wilson, Wenhua Huang, Lorelei Diane Ketcherside, Erin Marie Massey, Charles Montgomery, Bobby Joe Payne, Andrew Peterson, Ni Nancy Qian, Jeffrey J Schrick, Zheng-Zheng Shi, Mary Jean Sparks, Joy Anne Stala, Colleen M Viator, Peter Vogel, Weilan Ye, Jung-Hua Yeh, Zhiyong Ding: Novel Gene Disruptions, Compositions and Methods Relating Thereto. Genentech Apr, 28 2011: US 20110097330
36. Jo-Anne Hongo, Wesley Chang, Frederic J de Sauvage, Dan L Eaton, Allen J Ebens Jr, Gretchen D Frantz, Hartmut Koeppen, Andrew Polson, Victoria Smith: Compositions and methods for the treatment of tumor of hematopoietic origin. Genentech Dec, 28 2010: US 7858330
37. Ling Ling Culbertson, Frederic J de Sauvage, Charles Montgomery, Zheng-Zheng Shi, Mary Jean Sparks: Gene disruptions, compositions and methods relating thereto. Genentech Dec, 28 2010: US 7858843
38. Frederic J de Sauvage, David A Carpenter: Methods of screening for agonists and antagonists of patched-2. Genentech Oct, 12 2010: US 7811777
39. Frederic J de Sauvage, Robert D Klein, Heidi S Phillips, Arnon Rosenthal: Gfralpha3 and its uses. Sep, 30 2010: US 20100249034
40. Frederic J de Sauvage, Dan L Eaton, Allen J Ebens Jr, Andrew Polson, Victoria Smith, Suzie J Scales: Compositions and methods for the treatment of tumor of hematopoietic origin. Genentech Jul, 13 2010: US 7754441
41. Frederic J de Sauvage, Hua Tian: Method for using cdo antagonists to modulate hedgehog signaling. Genentech Apr, 22 2010: US 20100098624
42. Frederic J de Sauvage, Robert D Klein, Heidi S Phillips, Arnon Rosenthal: GFR $\alpha$ 3 polypeptides. Genentech Apr, 6 2010: US 7691973
43. Eugene M Johnson, Jeffrey D Milbrandt, Paul T Kotzbauer, Patricia A Lampe, Robert D Klein, Frederic J de Sauvage: Persephin specific antibodies. Washington University Jan, 19 2010: US 7649082
44. Katherin E Combs, Ling Ling Culbertson, Frederic J de Sauvage, Zhiyong Ding, Joel Edwards, Rosemary Girgis, Allison A B Horner, Harald Junge, Jagath Reddy Junutula, Erin Marie Massey, Dina R McLain, Charles Montgomery, Bobby Joe Payne, Heidi Phillips, Ni Nancy Qian, Carolina Rangel, Tracy E W Sevaux, Zheng-Zheng Shi, Mary Jean Sparks, Joy Anne Stala, Peter Vogel, Weilan Ye: Novel Gene Disruptions, Compositions and Methods Relating Thereto. Genentech Dec, 17 2009: US 20090313707
45. Katherin E Combs, Frederic J de Sauvage, Liangfen Fan, Ellen Filvaroff, Allison A B Horner, Bryan Irving, Jagath Reddy Juntula, Erin Marie Massey, Dina Rebecca McLain, Laurie Jeanette Minze, Charles Montgomery, Bobby Joe Payne, Heidi Philips, Carolina Rangel, Tracy E W Sevaux, Zheng-Zheng Shi, Mary Jean Sparks, Joy Anne Stala, Teresa G Townsend, Peter Vogel: Novel Gene Disruptions, Compositions and Methods Relating Thereto. Genentech Nov, 26 2009: US 20090293137
46. Kristi Rae Bollinger, Frederic J de Sauvage, Joel Edwards, Rosemary Girgis, Leslie Jane Green, Laurie Jeanette Minze, Bobby Joe Payne, Carolina Rangel, Zheng-Zheng Shi, Mary Jean Sparks, Tracy Tzu-Ling Tang, Peter Vogel: Novel Gene Disruptions, Compositions and Methods Relating Thereto. Genentech Nov, 19 2009: US 20090288176

47. Frederic J de Sauvage, Maximilien Murone, Arnon Rosenthal, Donna M Stone, Austin L Gurney, William I Wood: Assay methods for suppressor of fused modulation of hedgehog signaling. Genentech Aug, 25 2009: US 7579161
48. Alexander R Abbas, Nico P Ghilardi, Zora Modrusan, Dimitry M Danilenko, Frederic J De Sauvage, Wenjun Ouyang, Patricia A Valdez, Yan Zheng: Compositions and methods for treatment of microbial disorders. Genentech Aug, 13 2009: US 20090202475
49. Jane Brennan, Frederic J de Sauvage, Ellen Filvaroff, Iqbal Grewal, Bryan Irving, Jagath Reddy Junutula, Daniel Kirchhofer, Franklin Peale, Heide Phillips, Tracy Tang, Dineli Wickramasinghe, Weilan Ye: Novel Gene Disruptions, Composition and Methods Relating Thereto. Dec, 11 2008: US 20080305106
50. Lawrence A Solberg, Frederic J de Sauvage, Daniel L Eaton: c-Mpl LIGAND POLYPEPTIDE. Mayo Foundation for Medical Education and Research Sep, 18 2008: US 20080227953
51. Stephen Jay Anderson, Jane Brennan, Frederic J de Sauvage, Zhiyong Ding, Joel Edwards, Nelda A Fikes, Wenhui Huang, Wenjun Ouyang, Carolina Rangel, Mamta Sangha, Zheng-Zheng Shi, Mary Jean Sparks, Joseph Trackey, Melissa Vetter, Ching-Yun Wang, Jessica Woodings: Novel Gene Disruptions, Compositions and Methods Relating Thereto. Dec, 20 2007: US 20070292438
52. Frederic J de Sauvage, Hua Tian: Method for using BOC/CDO to Modulate Hedgehog Signaling. Genentech Oct, 11 2007: US 20070237774
53. Frederic J de Sauvage, Robert D Klein, Heidi S Phillips, Arnon Rosenthal: GFRalpha3 and its uses. Oct, 4 2007: US 20070232535
54. Frederic J de Sauvage, Marie Evangelista: Hedgehog Kinases and Their Use in Modulating Hedgehog Signaling. Genentech Aug, 2 2007: US 20070179091
55. Nico P Ghilardi, Frederic J de Sauvage, Audrey Goddard, Paul J Godowski, J Christopher Grimaldi, Austin Gurney, William I Wood: Nucleic acid encoding novel type-1 cytokine receptor glm-r. Genentech Jul, 26 2007: US 20070174922
56. Frederic J de Sauvage, Iqbal Grewal, Austin L Gurney: Modulation of T Cell Differentiation for the Treatment of T Helper Cell Mediated Diseases. Genentech Jun, 14 2007: US 20070134238
57. Nico P Ghilardi, Frederic J De Sauvage, Audrey Goddard, Paul J Godowski, J Christopher Grimaldi, Austin Gurney, William I Wood: Novel type-1 cytokine receptor glm-r. Jun, 14 2007: US 20070136829
58. Frederic J de Sauvage, David A Carpenter: Patched-2 antibodies. Genentech Mar, 1 2007: US 20070049730
59. Frederic J de Sauvage, Maximilien Murone, Arnon Rosenthal, Donna M Stone, Austin L Gurney, William I Wood: Nucleic acid encoding human suppressor of fused. Genentech Dec, 5 2006: US 7144996
60. Wesley Chang, Frederic J de Sauvage, Dan L Eaton, Allen J Ebens, Gretchen D Frantz, Jo-Anne Hongo, Hartmut Koeppen, Andrew Polson, Victoria Smith: Compositions and methods for the treatment of tumor of hematopoietic origin. Genentech Nov, 9 2006: US 20060251662
61. Frederic J de Sauvage, Robert D Klein, Heidi S Phillips, Arnon Rosenthal: GFRalpha3 and its uses. Sep, 28 2006: US 20060216289
62. Wesley Chang, Frederic J de Sauvage, Dan L Eaton, Allen J Ebens, Gretchen Frantz, Hartmut Koeppen, Andrew Polson, Victoria Smith: Compositions and methods for the treatment of tumor of hematopoietic origin. Genentech Sep, 28 2006: US 20060216232
63. Frederic J de Sauvage, Robert D Klein, Heidi S Phillips, Arnon Rosenthal: Polynucleotides encoding GFR $\alpha$ 3. Genentech Apr, 11 2006: US 7026138

64. Frederic J de Sauvage, Robert D Klein, Heidi S Phillips, Arnon Rosenthal: GFRalpha3 and its uses. Oct, 6 2005: US 20050221330
65. Frederic J de Sauvage, Maximilien Murone, Arnon Rosenthal, Donna M Stone, Austin L Gurney, William I Wood: Human suppressor of fused. Genentech Sep, 8 2005: US 20050196814
66. Dan L Eaton, Frederic J de Sauvage: Porcine mpl ligand. Genentech Dec, 9 2003: US 6660256
67. Frederic J de Sauvage, Arnon Rosenthal, Donna M Stone: Vertebrate smoothed proteins. Genentech Dec, 10 2002: US 6492139
68. Frederic J de Sauvage, David A Carpenter: Patched-2 antibodies. Genentech Oct, 24 2002: US 20020156245
69. Frederic J de Sauvage, Arnon Rosenthal, Donna M Stone: Antibodies to vertebrate smoothed proteins. Genentech Oct, 24 2000: US 6136958

SELECTED PRESENTATIONS
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- 1994: Workshop on Megakaryocytopoiesis and Thrombopoiesis (Washington D.C.).  
Department of Molecular Pharmacology, Stanford University, School of Medicine  
2nd International Cytokine Conference (Banff, Canada)  
Department of Oncology and Hematology, Deconess Hospital, Harvard University  
The American Society of Hematology (Nashville, TN).  
Institute of Cellular Pathology (Brussels, Belgium)  
Free University of Brussels, Department. of Chemical Biology (Brussels, Belgium).
- 1995: Dean Seminar Series, University of California San Francisco.  
Platelet Stimulating Therapies, IBC Conference (Washington D.C.)  
International Society of Experimental Hematology (Dusseldorf, Germany)  
Swedish Society of Hematology (Stockholm, Sweden)  
The American Society of Hematology (Seattle, WA).
- 1996: Third Annual Hemostasis and Thrombosis Symposium (Sacramento, CA).  
Molecular Regulation of Platelet Production, Keystone Symposium (Taos, NM).  
International Society of Experimental Hematology (New-York, NY)  
The American Society of Hematology (Orlando, FL).
- 1997: Keystone Symposium (Tamaron, CO).  
Molecular Biology of Hematopoiesis (Hamburg, Germany)
- 1998: Keystone Symposium on Platelets (Lake Tahoe, CA)  
PharmacoGenesis, Nature Biotechnology Conference (Boston, MA)  
Department of Hematology-Oncology, University of Alabama at Birmingham.  
The American Society of Hematology (Miami, FL)
- 1999: 5<sup>th</sup> International Congress on Biological Response Modifiers (Toronto, Canada)  
Dana-Farber Cancer Institute: Rose Winer Levin Lecture. (Boston, MA)
- 2000: 2000 Gordon Research Conference. Genes and Cancer: Pathways, Mutations and Genomics.  
(Newport, Rhode Island)  
Department of Pharmacology. University of Texas Southwestern. (Dallas, Texas)  
Hanson Symposium on "Cancer Biology and Therapeutics" (Adelaide, Australia)  
Walter and Eliza Hall Institute (Melbourne, Australia).
- 2001: Rockefeller University (New-York, NY)

- Institute of Cellular Pathology (Brussels, Belgium)
- 2002: Signal Transduction 2002 (Luxembourg-Kirchberg, Luxembourg)
- 2003: INSERM, Villejuif, France  
University of Seville, Spain
- 2004: Lexicon Genetics (Houston, Texas)
- 2006: Conference on Obstacles to Translation, San Francisco, CA  
AACR (Washington, DC)  
Gordon Research Conference on Molecular Therapeutics of Cancer (Oxford, England)  
EMBO Workshop on Hedgehog-Gli Signaling In Cancer and Stem Cells (Rome, Italy)  
6th ISREC Conference on Cancer Research (Lausanne, Switzerland)  
Academie Belge de Medecine (Brussels, Belgium)
- 2007 7<sup>th</sup> Annual Targeted Therapies for the treatment of Lung Cancer (Santa Monica, CA)  
Keystone Symposium Molecular Targets for Cancer (Whistler, Canada)  
AACR (Los Angeles)  
NCI workshop on Cancer Stem Cells as Targets for Cancer Prevention and Early Detection (Washington DC)  
Tumor-host interaction and angiogenesis: mechanisms and therapeutic implication (Ascona, Switzerland)  
6th International Symposium on Translational Research in Oncology (Dublin, Ireland)  
University of Michigan Cancer Center Fall Research Symposium (Ann Arbor, MI)
- 2008 Model Organisms and Stem Cells in Development, Regeneration and Disease (Bangalore, India)  
TAT 2008 conference (Bethesda, MD)  
AACR Educational session (San Diego, CA)  
UCSF Cancer Center Symposium entitled, "Stem Cells and Cancer" (San Francisco, CA)  
3<sup>rd</sup> Hedgehog Meeting , Stanford (PaloAlto, CA)  
5th European Spring Oncology Conference (ESOC-V) (Málaga, Spain)  
Centro Nacional de Investigaciones Oncológicas, CNIO (Madrid, Spain)  
Grand Round, UCSF Hematology/Oncology, (San Francisco, CA)  
Breast Oncology Program, UCSF (San Francisco, CA)  
AACR International Conference on Molecular Diagnostics in Cancer Therapeutic Development (Philadelphia, PE)  
CHOP ((Philadelphia, PE))  
University of Michigan Cancer Center Fall Research Symposium (Ann Arbor, MI)  
7th International Symposium on Translational Research in Oncology (Huntington Beach, CA)
- 2009 Cambridge Research Institute/CRUK (Cambridge, England)  
Fondation IPSEN meeting on Molecular Targets of Cancer Therapy (Jaipur, India)  
Institute of Cellular Pathology (Brussels, Belgium)  
7<sup>th</sup> International Symposium on Targeted Anticancer Therapies (TAT 2009) (Amsterdam, The Netherlands)  
Netherlands Cancer Institute (Amsterdam ,The Netherlands)  
AACR Annual Meeting (Denver, CO)  
ASCO's Annual meeting (Orlando, FL)  
Institute of Molecular and Cell Biology (IMCB, Singapore)  
AACR-NCI-EORTC Molecular Targets and Cancer Therapeutics conference (Boston, MA)  
UCSF Biochemistry seminar series (San Francisco)
- 2010 Second AACR Dead Sea Conference on Advances in Cancer Research: From the Laboratory to the Clinic (Jordan)  
EMBO Conference on Hedgehog signaling (Nice, France)  
AACR Annual Meeting: Meet the Expert (Orlando, FL)  
IMPAKT 2010 Breast Cancer Conference (Brussels, Belgium)  
University of Massachusetts Medical School, Worcester MA

- Massachusetts General Hospital (Boston, MA)  
11<sup>th</sup> Annual NIH Center for Molecular Studies in Digestive & Liver Diseases (Philadelphia, PA)  
International Conference on “Stem Cell: the diverging goals of regenerative medicine and oncology (Rome, Italy)  
UCSF School of Pharmacy, Industry Outreach Program: Pharmaceuticals of the Future: Case Histories in the Discovery and Development of Novel Therapeutics (San Francisco)  
Workshop “Stem cells: the diverging goals of regenerative medicine and oncology” Rome, Italy)  
Twenty-Fifth Aspen Cancer Conference: Mechanisms of Toxicity, Carcinogenesis, Cancer Prevention and Cancer Therapy (Aspen, CO)  
Biomedicum Helsinki lecture (Helsinki, Finland)  
High Throughput Biology 2010 meeting (Stockholm, Sweden)  
"The Biology and Treatment of Brain Cancers" symposium, USCF (San Francisco, CA)  
Samsung International Symposium on Molecular Medicine (Seoul, South Korea)
- 2011
- Danny Thomas Lecture, St. Jude (Memphis TN)  
Cold Spring Harbor (Cold Spring Harbor, NY)  
Cancer Genetics and Epigenetics Gordon Research Conference  
AACR Plenary Lecture (Orlando, FL)  
Keystone Symposium on Stem Cells, Cancer and Metastasis (Keystone, CO)  
UCLA Dermatology Grand Rounds lecture (Los Angeles, CA)  
Cold Spring Harbor Asia conference on Translational Approaches to Cancer (Shanghai, China)  
Swiss Institute for experimental Cancer Research (Lausanne, Switzerland)  
Developmental Biology & Molecular Biology Seminar, UT Southwestern (Dallas, TX)  
Dept de Biologie du Développement, Institut Curie (Paris, France)  
St. Jude annual Biomedical Symposium on Brain Development and Cancer (Memphis, TN)  
Anderson Cancer Center Lecture, Rockefeller University (New York, NY)  
AACR 2<sup>nd</sup> *Translational Cancer Research for Basic Scientists Workshop (Boston, MA)*
- 2012
- UCSB Frontiers in Cancer Research Doreen J. Putrah Distinguished Lecture (Santa Barbara, CA)  
Hedgehog Signalling in Development, Evolution and Disease 2012 (Biopolis, Singapore)  
Developmental Pathways in Cancer Major Symposium, 2012 AACR Annual meeting (Chicago, IL)  
Targeted Therapies in Cancer Symposium 2012 (Stony Brooks, NY)  
Bay Area Biotechnology Symposium on *Pharmaceuticals of the Future: Problems and Solutions*.  
Wellcome Trust Centre for Human Genetics University of Oxford (UK)  
Cambridge Cancer Centre Symposium (UK)  
London Research Institute Cancer Research UK  
Welbio, Interdisciplinary Research Institute, ULB (Brussels, Belgium)  
Cold Spring Harbor Laboratory Mechanisms & Models of Cancer meeting (NY)  
James W. Freston conference *GI Stem Cell (Chicago, IL)*  
The Jackson Laboratory's 21<sup>st</sup> Annual Short Course on Experimental Models of Human Cancer (Bar Harbor, ME)  
2eme forum international de Prospective de Recherche et Traitement pour le Cancer (Paris, France)  
The 2012 The Mouse Molecular Genetics Conference (Asilomar, CA)  
5<sup>th</sup> Annual Cancer Symposium: Gastrointestinal Cancer, Harvard Medical School (Boston, MA)  
AACR Translational Cancer Research for Basic Scientists Workshop (Boston, MA)  
2012 Korea Cancer Association Conference (Seoul, Korea)
- 2013
- EMBO Workshop Cycling to Death (Oberurg, Austria)  
Hedgehog & Gli Signaling in Stem Cells and Cancer (Fondation Les Treilles, France)  
Gordon Research Conference of Stem Cells (Les Diablerets, Switzerland)  
NCCR Molecular Oncology concluding Symposium (Lausanne, Switzerland)  
Cutting Lecture, Massachusetts General Hospital (Boston, MA)  
Fifty years of Progress in Oncology (Brussels, Belgium)  
The Jackson Laboratory's 22<sup>nd</sup> Annual Short Course on Experimental Models of Human Cancer (Bar Harbor, ME)  
ISSCR Stem Cells in Translation (Florence, Italy)  
University of Michigan, Cellular and Molecular Biology (Ann Arbor, MI)

- AACR Translational Cancer Research for Basic Scientists Workshop (Boston, MA)
- 2014      John H. Blaffer lecture, MD Anderson (Houston, TX)  
Genes and Cancer Meeting 2014, (Cambridge, UK)  
Triconference on Tumor models as a tool in translational Cancer research (San Francisco)  
Keystone Symposia on Developmental Pathways and Cancer: Wnt, Notch and Hedgehog (Organizer, Banff, Canada)  
Keystone Symposium on Cilia, Development and Human Disease (Lake Tahoe, CA)  
Salk Institute Symposium on Targeted Therapeutics & Resistance (San Diego, CA)  
The Jackson Laboratory's 23rd Annual Short Course on Experimental Models of Human Cancer (Bar Harbor, ME)  
8th Heinrich F. C. Behr Conference: Stem Cells and Cancer (Heidelberg, Germany)  
Goodbye Flat Biology: 3D Models and the Tumour Microenvironment (Berlin, Germany)
- 2015      John H. Blaffer lecture, MD Anderson (Houston, TX)  
TAMEST 2015 Annual Conference "Cancer: A Texas-Sized Problem." (Houston, TX)  
Triconference on Tumor models as a tool in translational Cancer research (San Francisco)  
EMBO | EMBL Symposium: Frontiers in Stem Cells & Cancer (Heidelberg, Germany)  
The Jackson Laboratory's 24th Annual Short Course on Experimental Models of Human Cancer (Bar Harbor, ME)  
The Buck Institute for Research on Aging (Novato, CA)  
Fourth AACR International Conference on Frontiers in Basic Cancer Research (Philadelphia, PE)  
Garvan Institute of Medical Research (Sydney, Australia)  
7<sup>th</sup> Barossa meeting: Cell Signalling in Cancer Biology and Therapy (Barossa Valley, Australia)  
AACR Special Conference on Development Biology and Cancer (Boston, MA)
- 2016      Nature Conference on Nuclear Reprogramming and the Cancer Genome (San Diego, CA)  
Hinterzartener Kreis of the DFG for Cancer Research, Cadenabbia/Como, Italy  
2<sup>nd</sup> International Kloster Seeon Meeting on Mouse Models of Human Cancer" (Germany)  
TRAM 2016 Annual Research Symposium (Stanford University (CA)  
EMBO | EMBL Symposium: Frontiers in Stem Cells & Cancer (Heidelberg, Germany)  
Hospital St Louis, Paris, France  
De Duve Institute, Brussels, Belgium  
GIGA-Cancer Institute, University of Liege, Belgium  
ISSCR 2016 Annual Meeting (San Francisco, CA)  
Welbio, Interdisciplinary Research Institute, ULB (Brussels, Belgium)  
The Jackson Laboratory's 25th Annual Short Course on Experimental Models of Human Cancer (Bar Harbor, ME)  
9th Heinrich F. C. Behr Conference: Stem Cells and Cancer (Heidelberg, Germany)  
2016 NextGen Genomics, Biology, Bioinformatics and Technologies (NGBT) Conference" (Cochin, India)