

STEPHEN J. GOULD, PH.D.
Curriculum Vitae/January 2014

PROFESSIONAL APPOINTMENTS

- 1991-1994 Director, Cell and Molecular Biology, The Kennedy Krieger Institute;
Assistant Professor of Cell Biology, The Johns Hopkins University School of
Medicine
- 1995-1998 Assistant Professor of Biological Chemistry, The Johns Hopkins University School
of Medicine
- 1998-2002 Associate Professor of Biological Chemistry, The Johns Hopkins University School
of Medicine
- 2002- Professor of Biological Chemistry, The Johns Hopkins University School of
Medicine

PERSONAL DATA

Address: Rm. 409, Physiology Building
Department of Biological Chemistry
725 North Wolfe Street
Baltimore, MD 21205 USA

Lab Phone: 410-955-3085
Cellphone: 443-847-9918
email: sgould@jhmi.edu

EDUCATION AND TRAINING

1981-1984 B.A. (Aquatic Biology) University of California, Santa Barbara
1984-1989 Ph.D. (Biology) University of California, San Diego
1989-1991 post-doctoral fellow University of California, San Diego

RECOGNITION

Awards, honors

Powell Foundation Fellow	1989
Member, NIH study section CDF4	2002-2004
Rose Johnstone Memorial Lectureship	2010
President, American Society of Exosomes and Microvesicles	2012-

RESEARCH ACTIVITIES

PUBLICATIONS

Peer reviewed articles, reviews, etc. (108 total):

1. Isacke, C. M., Meisenhelder, J., Brown, K. D., Gould, K. L., Gould, S. J., and Hunter, T. (1986) Early phosphorylation events following the treatment of Swiss 3T3 cells with bombesin and the mammalian bombesin-related peptide, gastrin-releasing peptide. **EMBO J.** 5, 2889-2898. PMID: 2431903.
2. Keller, G.-A., Gould, S., DeLuca, M. and Subramani, S. (1987) Firefly luciferase is targeted to peroxisomes in mammalian cells. **Proc. Natl. Acad. Sci. USA** 84, 3264-3268. PMID: 3554235.
3. Gould, S. J., Keller, G.-A. and Subramani, S. (1987) Identification of a peroxisomal targeting signal at the carboxy-terminus of firefly luciferase. **J. Cell Biol.** 105, 2923-2931. PMID: 3480287.
4. Gould, S. J., Keller, G.-A. and Subramani, S. (1988) Identification of peroxisomal targeting signals located at the carboxy-terminus of four peroxisomal proteins. **J. Cell Biol.** 107, 897-905. PMID: 2901422.
5. Gould, S. J. and Subramani, S. (1988) Firefly luciferase as a tool in molecular and cell biology. **Anal. Biochem.** 175, 5-13. PMID: 3072883.
6. Gould, S. J., Keller, G.-A., Hosken, N., Wilkinson, J. and Subramani, S. (1989) A conserved tripeptide sorts proteins to peroxisomes. **J. Cell Biol.** 108, 16571664. PMID: 2654139.
7. Gould, S. J., Subramani, S. and Scheffler, I. (1989) Use of the polymerase chain reaction for homology probing: Isolation of partial cDNA or genomic clones encoding the iron-sulfur protein of succinate dehydrogenase from several species. **Proc. Natl. Acad. Sci. USA** 86, 1934-1938. PMID: 2494655.
8. Gould, S. J., Keller, G.-A., Schneider, M., Howell, S. H., Garrard, L. J., Goodman, J., Distel, B., Tabak, H. and Subramani, S. (1990) Peroxisomal protein import is conserved between yeast, plants, insects and mammals. **EMBO J.** 9, 86-90. PMID: 2104803.
9. Gould, S. J., Krisans, S., Keller, G.-A. and Subramani, S. (1990) Antibodies directed against the peroxisomal targeting signal of firefly luciferase recognize multiple peroxisomal proteins **J. Cell Biol.** 110, 27-34. PMID: 1688562.
10. Wright, R., Keller, G., Gould, S. J., Subramani, S. and Rine, J. (1991) Cell-type control of membrane biogenesis induced by HMG-CoA reductase. **New Biol.** 2, 915-921. PMID: 2078559.

11. Keller, G.-A., Krisans, S., Gould, S. J., Sommer, J. M., Wang, C. C., Schleibs, W., Kunau, W., Brody, S. and Subramani, S. (1991) Evolutionary conservation of a microbody targeting signal that targets proteins to peroxisomes, glyoxysomes, and glycosomes. **J. Cell Biol.** 114, 893-904. PMID: 1831458.
12. Swinkels, B. W., Gould, S. J., Bodnar, A. G., Rachubinski, R. A. and Subramani, S. (1991) A novel, cleavable peroxisomal targeting signal at the amino-terminus of the rat 3-ketoacyl-CoA thiolase. **EMBO J.** 10, 3255-3262. PMID: 1680677.
13. Hodge, V. J., Gould, S. J., Subramani, S., Moser, H. W. and Krisans, S. K. (1991) Normal cholesterol synthesis in human cells requires functional peroxisomes **Biochem. Biophys. Res. Comm.** 181, 537-541. PMID: 1755834.
14. Milarski, K., Dunphy, B., Gould, S. J., Russel, P. and Newport, J. (1991) Cloning and characterization of Xenopus cdc2, a component of MPF. **Cold Spr. Har. Symp. Quant. Biol.** 56, 377-384. PMID: 1840255.
15. Swinkels, B. W., Gould, S. J. and Subramani, S. (1992) Targeting efficiencies of various permutations of the consensus C-terminal tripeptide peroxisomal targeting signal. **FEBS Lett.** 305, 133-136. PMID: 1618341.
16. Distel, B., Gould, S. J., Voorn-Brouwer, T., van den Berg, M., Tabak, H.F. and Subramani, S. (1992) The carboxy-terminal tripeptide serine-lysine-leucine of firefly luciferase is necessary but not sufficient for peroxisomal protein import in yeast. **New Biol.** 4, 157-165. PMID: 1554690
17. Walton, P. A., Gould, S. J., Feramisco, J. R. and Subramani, S. (1992) Transport of microinjected proteins into peroxisomes of mammalian cells: Inability of Zellweger cell lines to import proteins with the peroxisomal targeting signal. **Mol. Cell. Biol.** 12, 531-541. PMID: 173272.
18. Walton, P. A., Gould, S. J., Rachubinski, R.A., Subramani, S. and Feramisco, J. R. (1992) Transport of microinjected alcohol oxidase from Pichia pastoris into vesicles in mammalian cells: involvement of the peroxisomal targeting signal. **J. Cell Biol.** 188: 499-508. PMID: 1639840.
19. Gould, S. J., McCollum, D., Spong, A. P., Heyman, J. A. and Subramani, S. (1992) Development of the yeast Pichia pastoris as a model organism for a genetic and molecular analysis of peroxisome assembly. **Yeast** 8, 613-628. PMID: 1441741
20. Crane, D. I., Kalish, J. and Gould, S. J. (1994) The Pichia pastoris PAS4 gene encodes a ubiquitin-conjugating enzyme required for peroxisome assembly. **J. Biol. Chem.** 269, 21835-21844. PMID: 8063827.

21. Crane, D. I. and Gould, S. J. (1994) The *Pichia pastoris* HIS4 gene: nucleotide sequence, creation of a non-reverting his4 deletion mutant, and development of HIS4-based replicating and integrating plasmids. **Cur. Genet.** 26, 443-450. PMID: 7874737.
22. Kok, F., Neumann, S., Sarde, C. O., Zheng, S., Wu, K.-H., Bergin, J., Watkins, P.A., Gould, S., Sack, G., Moser, H., Mandel, J. L., and Smith, K. D. (1995) Mutational analysis of patients with X-linked adrenoleukodystrophy. **Hum. Mut.** 6, 104-115. PMID: 7581394
23. Kalish, J. E., Chen, C. I., Gould, S. J., and Watkins, P. A. (1995) Peroxisomal activation of long-and very long-chain fatty acids in the yeast *Pichia pastoris*. **Biochem. Biophys. Res. Comm.** 206, 335-340. PMID: 7818538.
24. Dodt, G., Braverman, N., Wong, C., Moser, A., Moser, H.W., Watkins, P., Valle, D., and Gould, S.J. (1995) Mutations in the PTS1 receptor gene, PXR1, define complementation group 2 of the peroxisome biogenesis disorders. **Nature Genet.** 9, 115-125. PMID: 7719337.
25. Slawecki, M.L., Dodt, G., Steinberg, S., Moser, A.B., Moser, H.W., and Gould, S.J. (1995) Identification of three distinct peroxisomal protein import defects in patients with peroxisome biogenesis disorders. **J. Cell Sci.** 108, 1817-1829. PMID: 7544797.
26. Kalish, J.E., Theda, C., Morrell, J. C., Berg, J. M., and Gould, S. J. (1995) Formation of the peroxisome lumen is abolished by loss of *Pichia pastoris* Pas7p, a zinc-binding integral membrane protein of the peroxisome. **Mol. Cell. Biol.** 15, 6406-6419. PMID: 7565793.
27. Watkins, P.A, Gould, S.J., Smith, M.A., Braiterman, L. T., Wei, H.-M., Kok, F., Moser, A.B., Moser, H.W., and Smith, K.D. (1995) Altered expression of ALDp in X-linked adrenoleukodystrophy. **Am. J. Hum. Genet.** 57, 292-301. PMID: 7668254.
28. Braverman, N., Dodt, G., Gould, S.J., and Valle, D. (1995) Disorders of peroxisome biogenesis. **Hum. Mol. Genet.** 4, 1791-1798. PMID: 8541879.
29. Yahraus, T., Braverman, N., Dodt, G., Kalish, J. E., Morrell, J. C., Moser, H. W., Valle, D., and Gould, S. J. (1996) The peroxisome biogenesis disorder group 4 gene, PXAAA1, encodes a cytoplasmic ATPase required for stability of thePTS1 receptor. **EMBO J.** 15, 2914-2923. PMID: 8670792.
30. Kalish, J. E., Keller, G.-A., Morrell, J. C., Mihalik, S. J., Smith, B., Cregg, J.M., and Gould, S. J. (1996) Characterization of a novel component of the peroxisomal protein import apparatus using fluorescent peroxisomal proteins. **EMBO J.** 15, 3275-3285. PMID: 8670828.
31. Distel, B., Erdmann, R., Gould, S. J., Blobel, G., Crane, D. I., Cregg, J. M., Dodt, G., Fujiki, Y., Goodman, J. M., Just, W. W., Kiel, J. A. K. W., Kunau, W.H., Lazarow, P. B., Mannaerts, G. P., Moser, H. W., Osumi, T., Rachubinski, R.A., Roscher, A., Subramani, S.,

- Tabak, H. F., Tsukamoto, T., Valle, D., van der Klei, I., van Veldhoven, P. P., and Veenhuis, M. (1996) A unified nomenclature for peroxisome biogenesis factors. **J. Cell Biol.** 135, 1-3. PMID: 8858157.
32. Gould, S. J., Kalish, J. E., Morrell, J. C., Bjorkman, J., Urquhart, A. J., and Crane, D. I. (1996) Pex13p is an SH3 protein in the peroxisome membrane is a docking factor for the PTS1 receptor. **J. Cell Biol.** 135, 85-95. PMID: 8858165.
33. Watkins, P. A., Howard, A. E., Gould, S. J., Avigan, J., and Mihalik, S. J. (1996) Phytanic acid activation in rat liver peroxisomes is catalyzed by long chain acyl-CoA synthetase. **J. Lipid Res.** 37, 2288-2295. PMID: 8978480.
34. Dodt, G., and Gould, S. J. (1996) Multiple PEX genes are required for proper subcellular distribution and stability of Pex5p, the PTS1 receptor: Evidence that PTS1 protein import is mediated by a cycling receptor. **J. Cell Biol.** 135, 1763-1774. PMID: 8991089.
35. Dodt, G., Braverman, N., Valle, D., and Gould, S. J. (1996) From expressed sequence tags to peroxisome biogenesis disorder genes. **Annals N. Y. Acad. Sci.** 804, 516-523. PMID: 8993569.
36. Braverman, N., Steel, G., Obie, C., Moser, A., Moser, H., Gould, S. J., and Valle, D. (1997) Human PEX7 encodes the peroxisomal PTS2 receptor and is responsible for rhizomelic chondrodysplasia punctata. **Nature Genet.** 15, 369-376. PMID: 9090381.
37. Chang, C.-C., Lee, W.-H., Moser, H., Valle, D., and Gould, S. J. (1997) Isolation of the human PEX12 gene, mutated in group 3 peroxisome biogenesis disorder patients. **Nature Genet.** 15, 385-388. PMID: 9090384
38. Mihalik, S. J., Morrell, J. C., Kim, D., Sacksteder, K., Watkins, P.A., and Gould, S. J. (1997) Identification of PAHX, a Refsum disease gene. **Nature Genet.** 17, 185-189. PMID: 9326939.
39. Reuber, B.E., Collins, C.S., Germain-Lee, E., Morrell, J.C., Ameritunga, R., Moser, H. W., Valle, D. and Gould, S. J. (1997) Mutations in PEX1 are the most common cause of the peroxisome biogenesis disorders. **Nature Genet.** 17, 445-448. PMID: 9398847.
40. Watkins, P. A., Lu, J. F., Steinberg, S. J., Gould, S. J., Smith, K. D., and Braiterman, L. T. (1998) Disruption of the *Saccharomyces cerevisiae* FAT1 gene decreases very long-chain fatty acyl-CoA synthetase activity and elevates intracellular very long-chain fatty acid concentrations. **J. Biol. Chem.** 273, 18210-18219. PMID: 9660783.
41. Braverman, N., Dodt, G., Gould, S. J., and Valle, D. (1998). An isoform of PEX5, the human PTS1 receptor, is required for the import of PTS2 proteins into peroxisomes. **Hum. Mol. Genet.** 7, 1195-1205. PMID: 9668159.

42. Geisbrecht, B. V., Collins, C. S., Reuber, B. E., and Gould, S. J. (1998) Disruption of a PEX1-PEX6 interaction is the most common cause of the neurologic disorders Zellweger syndrome, neonatal adrenoleukodystrophy and infantile Refsum disease. **Proc. Natl. Acad. Sci. USA.** 95, 8630-8635. PMID: 9671729.
43. Warren, D. S., Morrell, J. C., Moser, H. W., Valle, D., Gould, S. J. (1998) Identification of PEX10, the gene defective in complementation group 7 of the peroxisome biogenesis disorders. **Am. J. Hum. Genet.** 63, 347-359. PMID: 9683594. PMID: 9671729.
44. Bonhivers, M., Carbrey, J. M., Gould, S. J., and Agre, P. (1998) Aquaporins in Saccharomyces: Genetic and functional distinctions between laboratory and wild-type strains. **J. Biol. Chem.** 273, 27565-27572. PMID: 9765289.
45. Schrader, M., Reuber, B. E., Morrell, J. C., Jimenez-Sanchez, G., Obie, C., Stroh, T. A., Valle, D., Schroer, T. A., Gould, S. J. (1998) Expression of PEX11b mediates peroxisome proliferation in the absence of extracellular stimuli. **J. Biol. Chem.** 273, 29607-29614. PMID: 9792670.
46. Chang, C. C., and Gould, S. J. (1998) Phenotype-genotype relationships in complementation group 3 of the peroxisome biogenesis disorders. **Am. J. Hum. Genet.** 63, 1294-1306. PMID: 9792857.
47. Geisbrecht, B. V., Zhu, D., Schulz, K., Nau, K., Morrell, J. C., Geraghty, M. T., Schulz, H., Erdmann, R., and Gould, S. J. (1998) Molecular characterization of Saccharomyces cerevisiae Δ^3, Δ^2 -enoyl CoA isomerase. **J. Biol. Chem.** 273, 33184-33191. PMID: 9837886.
48. Björkman, J., Stetten, G., Moore, C. S., Gould, S. J., and Crane, D. I. (1998) Genomic structure of PEX13, a candidate peroxisome biogenesis disorder gene. **Genomics** 54, 521-528. PMID: 9878256.
49. South, S., and Gould, S. J. (1999) Peroxisome synthesis in the absence of preexisting peroxisomes. **J. Cell Biol.** 144, 255-266. PMID: 9922452.
50. Jones, J. M., Nau, K., Geraghty, M. T., Erdmann, R., and Gould, S. J. (1999) Identification of peroxisomal acyl-CoA thioesterases in yeast and humans. **J. Biol. Chem.** 274, 9216-9223. PMID: 10092594.
51. Chang, C. C., South, S., Warren, D., Moser, H. W., Moser, A. B., and Gould, S. J. (1999) Metabolic control of peroxisome abundance. **J. Cell Sci.** 112, 1579-1590. PMID: 10212151.
52. Geisbrecht, B. V., Schulz, K., Nau, K., Geraghty, M. T., Schulz, H., Erdmann, R., and Gould, S. J. (1999) Preliminary characterization of Yor180Cp: Identification of a novel

peroxisomal protein of *Saccharomyces cerevisiae* involved in fatty acid metabolism. **Biochem. Biophys. Res. Comm.** 260: 28-34. PMID: 10381339.

53. Geisbrecht, B. V., Zhang, D., Schulz, H., and Gould, S. J. (1999) Characterization of PEX1, a novel monofunctional Δ^3, Δ^2 -enoyl-CoA isomerase of mammalian peroxisomes. **J. Biol. Chem.** 274, 21797-21803. PMID: 10419495.

54. Liu, Y., Bjorkman, J., Urquhart, A., Wanders, R. J. A., Crane, D., and Gould, S. J. (1999) PEX13 is mutated in complementation group 13 of the peroxisome biogenesis disorders. **Am. J. Hum. Genet.** 65, 621-634. PMID: 10441568.

55. Collins, C. S., and Gould, S. J. (1999) Identification of a common PEX1 mutation in Zellweger syndrome. **Hum. Mut.** 14:45-53. PMID: 10447258.

56. Sacksteder, K. A., Morrell, J. C., Matalon, R., and Gould, S. J. (1999) MCD encodes peroxisomal and cytoplasmic forms of malonyl-CoA decarboxylase and is mutated in malonyl-CoA decarboxylase deficiency. **J. Biol. Chem.** 274, 25085-25092. PMID: 10455107.

57. Geisbrecht, B. V., Liang, X., Morrell, J. C., Schulz, H., and Gould, S. J. (1999) The mouse PDCR gene encodes a peroxisomal Δ^2, Δ^4 -dienoyl-CoA reductase. **J. Biol. Chem.** 274, 25814-25820. PMID: 10464321.

58. Geisbrecht, B. V., and Gould, S. J. (1999) The human PICD gene encodes a peroxisomal and cytoplasmic NADP⁺-dependent isocitrate dehydrogenase. **J. Biol. Chem.** 274, 30527-30533. PMID: 10521434.

59. Chang, C. C., Warren, D. S., Sacksteder, K. A., and Gould, S. J. (1999) PEX12 interacts with PEX5 and PEX10 and acts downstream of receptor docking in peroxisomal matrix protein import. **J. Cell Biol.** 147, 761-774. PMID: 10562279.

60. Dodt, G., Kim, D. G., Reimann, S. A., Reuber, B. E., McCabe, K., Gould, S. J., and Mihalik, S. J. (2000) L-pipecolic acid oxidase, a human enzyme essential for the degradation of L-pipecolic acid, is most similar to the monomeric sarcosine oxidases. **Biochem. J.** 345, 487-494. PMID: 10642506.

61. Urquhart, A. J., Kennedy, D., Gould, S. J., and Crane, D. I. (2000) Interaction of Pex5p, the PTS1 receptor, with the peroxisomal membrane proteins Pex14p and Pex13p. **J. Biol. Chem.** 275, 4127-4126. PMID: 10660573.

62. Sacksteder, K. A., Jones, J. M., South, S., Li, X., and Gould, S. J. (2000) PEX19 binds multiple peroxisomal membrane proteins, is predominantly cytoplasmic, and is required for peroxisome membrane synthesis. **J. Cell Biol.** 148, 931-944. PMID: 10704444.

63. Gatto, G. J., Geisbrecht, B. V., Gould, S. J., and Berg, J. (2000) A proposed model for the PEX5-Peroxisomal Targeting Signal-1 recognition complex. **Proteins** 38, 241-246. PMID: 10713985.
64. Sacksteder, K. A., Biery, B. J., Morrell, J. C., Goodman, B. K., Geisbrecht, B.V., Cox, R. P., Gould, S. J., and Geraghty, M. T. (2000) Identification of the alpha-amino adipic semialdehyde synthase gene which is defective in familial hyperlysinemia. **Am. J. Hum. Genet.** 66, 1736-1743. PMID: 10775527.
65. Jones, J. M., Morrell, J. C., and Gould, S. J. (2000) Identification and characterization of HAOX1, HAOX2, and HAOX3, three human peroxisomal 2-hydroxy acid oxidases. **J. Biol. Chem.** 275, 12590-12597. PMID: 10777549.
66. Warren, D. S., Wolfe, B. D., and Gould, S. J. (2000) Phenotype-genotype relationships in PEX10-deficient peroxisome biogenesis disorder patients. **Hum. Mut.** 15, 509-521. PMID: 10862081.
67. South, S. T., Sacksteder, K. A., Li, X., Liu, Y., and Gould, S. J. (2000) Inhibitors of COPI and COPII do not block PEX3-mediated peroxisome synthesis. **J. Cell Biol.** 149, 1345-1360. PMID: 10871277.
68. Gould, S. J. and Valle, D. (2000) The genetics and cell biology of the peroxisome biogenesis disorders. **Trends in Genetics** 16, 340-345. PMID: 10904262.
69. Jones, J. M. and Gould, S. J. (2000) Identification of PTE2, a human peroxisomal long-chain acyl-CoA thioesterase. **Biochem. Biophys. Res. Commun.** 275, 233-240. PMID: 10944470.
70. Collins, C. S., Kalish, J. E., Morrell, J. C., McCaffrey, J. M., and Gould, S. J. (2000) The peroxisome biogenesis factors Pex4p, Pex22p, Pex1p, and Pex6p act in the terminal steps of peroxisomal matrix protein import. **Mol. Cell. Biol.** 20, 7516-7526. PMID: 11003648.
71. Sacksteder, K. A. and Gould, S. J. (2000) The genetics of peroxisome biogenesis. **Annu. Rev. Genet.** 34, 632-652. PMID: 11092841.
72. Gatto, G., Geisbrecht, B. V., Gould, S. J., and Berg, J. (2000) Peroxisomal targeting signal-1 recognition by the TPR domains of human PEX5. **Nat. Struct. Biol.** 7, 1091-1095. PMID: 11101887.
73. Praphanphoj, V., Sacksteder, K. A., Gould, S. J., Thomas, G. H., and Geraghty, M. T. (2001) Identification of the alpha-amino adipic semialdehyde dehydrogenase phosphopantetheinyl transferase gene, the human ortholog of the yeast LYS5 gene. **Mol. Genet. Metab.** 72, 336-342. PMID: 11286508.

74. Dodt, G., Kim, D. G., Reimann, S. A., McCabe, K., Gould, S. J., and Mihalik, S. J. (2000) The human L-pipecolic acid oxidase is similar to bacterial monomeric sarcosine oxidases rather than D-amino acid oxidases. **Cell Biochem. Biophys.** 32, 313-316. PMID: 11330064.
75. Jones, J. M., Morrell, J. C., and Gould, S. J. (2001) Multiple distinct targeting signals in integral peroxisomal membrane proteins. **J. Cell Biol.** 153, 1141-1150. PMID: 11402059.
76. Dodt, G., Warren, D. S., Becker, E., Rehling, P., and Gould, S. J. (2001). Domain mapping of human PEX5 reveals structural and functional similarities to *S. cerevisiae* Pex18p and Pex21p. **J. Biol. Chem.** 276, 41769-41781. PMID: 11546814.
77. Surendan, S., Sacksteder, K. A., Gould, S. J., Coldwell, J. G., Rady, P. L., Tying, S. K., Matalon, R. (2001) Malonyl-CoA decarboxylase deficiency: C to T transition in intron 2 of the MCD gene. **J. Neurosci. Res.** 65, 591-594. PMID: 11550227.
78. South, S. T., Baumgart, E., and Gould, S. J. (2001). Inactivation of the endoplasmic reticulum protein translocation factor, Sec61p, or its homolog, Ssh1p, does not affect peroxisome biogenesis **Proc. Natl. Acad. Sci. USA.** 98, 12027-12031. PMID: 11593013.
79. Habinowski, S. A., Hirschman, M., Sakamoto, K., Kemp, B. E., Gould, S. J., Goodyear, L. J., and Witters, L. A. (2001) Malonyl-CoA decarboxylase is not a substrate of AMP-activated protein kinase in rat fast-twitch skeletal muscle or an islet cell line. **Arch. Biochem. Biophys.** 396, 71-91. PMID: 11716464.
80. Zhang, D., Yu, W., Geisbrecht, B. V., Gould, S. J., Sprecher, H., Schulz, H. H. (2002) Functional characterization of Δ^3, Δ^2 -enoyl-CoA isomerases from rat liver. **J. Biol. Chem.** 277, 9127-32. PMID: 11781327.
81. Bjorkman, J., Gould, S. J. and Crane, D. I. (2002) Pex13, the mouse ortholog of the human peroxisome biogenesis disorder PEX13 gene: gene structure, tissue expression, and localization of the protein to peroxisomes. **Genomics.** 79,162-8. PMID: 11829486.
82. Li, X., and Gould, S. J. (2002) PEX11 promotes peroxisome division independently of peroxisome metabolism. **J. Cell Biol.** 156, 643-651. PMID: 11839773.
83. Harper, C., South, S., McCaffrey, J. M., and Gould, S. J. (2002) Peroxisomal membrane protein import does not require PEX17. **J. Biol. Chem.** 277, 16498-16504. PMID: 11859077.
84. Gould, S. J., and Collins, C. S. (2002) Peroxisomal protein import: is it really that complex? **Nature Rev. Mol. Cell Biol.** 3, 382-389. PMID: 11988772.

85. Li, X., Baumgart, E., Morrell, J. C., Jimenez-Sanchez, G., Valle, D., and Gould, S. J. (2002) PEX11 β -deficiency is lethal and impairs neuronal migration but does not abrogate peroxisome function. **Mol. Cell Biol.** 22, 4358-4365. PMID: 12024045.
86. Erdmann, R., and Gould, S. J. (2002) Visualization and purification of yeast peroxisomes. In: Guide to Yeast Genetics and Cell Biology, Part C. **Methods in Enzymology** 351, 365-381. PMID: 12073357.
87. Li X., Baumgart, E., Dong, G. X., Morrell, J. C., Jimenez-Sanchez, G., Valle, D., Smith, K. D., Gould, S. J. (2002) PEX11 α is required for peroxisome proliferation in response to 4-phenylbutyrate but is dispensable for peroxisome proliferator-activated receptor α -mediated peroxisome proliferation. **Mol. Cell Biol.** 22, 8226-40. PMID: 12417726.
88. Harper, C. C., Berg, J. M., and Gould, S. J. (2002) PEX5 binds the PTS1 independently of Hsp70 and the peroxin PEX12. **J. Biol. Chem.** 278, 7897-7901. PMID: 12456682.
89. Gatto, G. J., Maynard, E. L., Guerrerio, A. L., Geisbrecht, B. V., Gould, S. J., and Berg J. M. (2003) Correlating structure and binding activity for human Pex5p. **Biochem.** 42,1660-1666. PMID: 12578380.
90. Li, X. and Gould, S. J. (2003) The dynamin-like GTPase DLP1 is essential for peroxisome division and is recruited to peroxisomes in part by PEX11. **J. Biol. Chem.** 278, 17012-17020. PMID: 12618434.
91. Gould, S. J., Booth, A., and Hildreth, J. E. K. (2003) The Trojan exosome hypothesis. **Proc. Natl. Acad. Sci. USA.** 100, 10592-10597. PMID: 12947040.
92. Weller, S., Gould, S. J., and Valle, D. (2003) Peroxisome biogenesis disorders. **Annu. Rev. Genomics Hum. Genet.** 4, 165-211. PMID: 14527301.
93. Nguyen, D. G., Booth, A., Gould, S. J., and Hildreth, J. E. (2003) Evidence that HIV budding in primary macrophages occurs through the exosome release pathway. **J. Biol. Chem.** 278:52347-52354. PMID: 14561735.
94. Jones, J. M., Morrell, J. C., and Gould, S. J. (2004) PEX19 is a predominantly cytosolic chaperone and import receptor for Class I peroxisomal membrane proteins. **J. Cell Biol.** 164:57-67. PMID: 14709540.
95. Fang, Y., Morrell, J. C., Jones, J. M., and Gould, S. J. (2004) PEX3 functions as a PEX19 docking factor in the import of class I peroxisomal membrane proteins. **J. Cell Biol.** 164:863-875. PMID: 15007061.
96. Gould, S. J., Hildreth, J.E.K., and Booth, A. (2004) The evolution of alloimmunity and the genesis of adaptive immunity. **Q. Rev. Biol.** 79, 359-382. PMID: 15669770.

97. Weller, S., Cajigas, I., Morrell, J., Obie, C., Steel, G., Gould, S.J., and Valle, D. (2005) Alternative splicing suggests extended function of PEX26 in peroxisome biogenesis. **Am. J. Hum. Genet.** 76, 987-1007. PMID: 15858711.
98. Schrader, M., and Gould, S. J. (2005) Assay and functional analysis of dynamin-like protein 1 in peroxisome division. **Methods in Enzymology.** 404: 586-597. PMID: 16413302.
99. Booth, A.M., Fang, Y., Fallon, J.K., Yang, J.-M., Hildreth, J.E.K., and Gould, S.J. (2006) Exosomes and HIV Gag bud from endosome-like domains of the T-cell plasma membrane. **J. Cell Biol.** 172, 923-935. PMID: 16533950.
100. Fang, Y., Wu, N., Gan, X., Yan, W., Morrell, J.C., and Gould, S. J. (2007) Higher-order oligomerization targets plasma membrane proteins and HIV Gag to exosomes. **PLoS Biol.** 5:e158. PMID: 17550307.
101. Ntamack, A.G., Karpichev, I. V., Gould, S. J., Small, G. M., and Schulz, H. (2009) Oleate beta-oxidation in yeast involves thioesterase but not Yor180c protein that is not a dienoyl-CoA isomerase. **Biochim. Biophys. Acta.** 1791:371-8. PMID: 19830908.
102. Gan, X. and Gould, S. J. (2011). Identification of an inhibitory budding signal that blocks the release of HIV particles and exosome/microvesicle proteins. **Mol. Biol. Cell.** 22:817-830. PMID: 21248205.
103. Shen, B., Wu, N., Yang, J.-M., and Gould, S. J. (2011) Protein targeting to exosomes/microvesicles by plasma membrane anchors. **J. Biol. Chem.** 286:14383-14395. PMID: 21300796.
104. Shen, B., Fang, Y., Wu, N., and Gould, S. J. (2011) Biogenesis of the posterior pole is mediated by the exosome/microvesicle protein-sorting pathway. **J. Biol. Chem.** 286:44162-76. PMID: 21865156.
105. Gan, X., and Gould, S.J. (2012) HIV Pol Inhibits HIV Budding and Mediates the Severe Budding Defect of Gag-Pol. **PLoS One.** 7:e29421. PMID: 22235295.
106. Yang, J.-M., and Gould, S. J. (2012) The *cis*-acting signals that target proteins to exosomes and microvesicles. **Biochem. Soc. Trans.** 41:277-282. PMID: 23356297
107. Gould, S. J. and Raposo, G. (2013) As we wait: coping with an imperfect nomenclature for extracellular vesicles. **J. Extracellular Vesicles.** 2:e20389
108. Gould, S. J., Taylor, D., Chiesi, A., and Kuo, W. P. (2013) Announcing *Exosomes and Microvesicles*, the official journal of the American Society for Exosomes and Microvesicles. **Exosomes and Microvesicles.** 1:e1

Book chapters:

1. Gould, S.J. and Subramani, S. (1991) Translocation of proteins into peroxisomes. In *Intracellular Trafficking of Proteins*. C.J. Steer and J. Hanover, eds. Cambridge University Press.
2. Gould, S. J., Raymond, G., and Valle, D. (2001) The peroxisome biogenesis disorders, in *The Molecular and Metabolic Basis of Inherited Disease*, eds Scriver, C. R., Beaudet, A. L., Sly, W. S., and Valle, D. McGraw Hill. 8th edition. Volume II, pgs. 3181-3218.
3. Geisbrecht, B. V., and Gould, S. J. (2002) Peroxisomal targeting signals, in *The Encyclopedia of Molecular Medicine*, ed. Creighton, T. E. John Wiley & Sons.
4. Chang, C. C., and Gould, S. J. (2002) PEX genes, in *The Encyclopedia of Molecular Medicine*, ed. Creighton, T. E. John Wiley & Sons.
5. Valle, D., Raymond, G. V., and Gould, S. J. (2002) Peroxisomal Disorders, in *Rudolph's Textbook of Pediatrics*, 4th edition.
6. Gould, S. J. (2013) Exosomes and Microvesicles, in *Encyclopedia of Biological Chemistry*, vol. 2, pgs. 262-264.
7. Gould, S. J. (2013) Peroxisomal Metabolism, in *Encyclopedia of Biological Chemistry*, vol. 3, pgs. 413-417.

INVITED PRESENTATIONS

2013

- "Exosome Biogenesis and Retrovirus Budding" Boston, MA
Seminar, Dept of Neuroscience, MGH/Harvard (Nov 21 2013)
- "Genetic approaches to understanding EV biogenesis" Singapore
SOCRATES 2013, Matrix A*STAR (Oct 24-27 2013)
- "Exploring the genetics of exosome biogenesis" Orlando, FL
ASEMV 2013; Annual Meeting of the American Society for Exosomes and Microvesicles
(Sept 6-9 2013)

“Lessons from exosomes: cell-cell interactions and HIV budding” Boston, MA
12th Frye-Halloran Education Day; Exosomes and the Nervous System (April 16, 2013)

“Protein budding occurs primarily at the plasma membrane” Boston, MA
2nd Annual Meeting of the International Society for Extracellular Vesicles (April 17-20, 2013)

2012

“EMV Biogenesis: A Cargo-Based Approach San Francisco, CA
KOA Symposium, iPierian Inc. (April)

“A Cargo-Based Approach to EMV Biogenesis” Gothenburg, Sweden
1st annual meeting
International Society for Extracellular Vesicles (April)

“Controversies in Vesicle Nomenclature” Gothenburg, Sweden
1st annual meeting
International Society for Extracellular Vesicles (April)

“Current Challenges in Exosome/Microvesicle Research” Bethesda, MD
Joint NIH/ASEMV workshop (May)

“Mechanisms of EMV Biogenesis” London, UK
‘Microvesiculation and Disease’
Meeting of the Biochemical Society (September)

“Exosome Biogenesis and Retrovirus Budding” Baltimore, MD
Department of Neurology
Johns Hopkins University (September)

“Retrovirus Budding” Orlando, FL
‘Exosomes and Microvesicles 2012’ (Sept/Oct)

“Exosome Biogenesis and Protein Budding” Madrid, Spain
Exosomes and Markers in Biological Fluids
Systems Biology Europe (October)

“Mechanisms of exosome biogenesis and HIV budding” Boston, MA
Massachusetts General Hospital
Harvard University (October)

“Introduction to Exosomes and Microvesicles” San Francisco
Chair’s introduction

'Exosomes and Microvesicles' special interest subgroup
Annual Meeting of the American Society for Cell Biology (December)

2011

"Plasma Membrane Anchors Target Proteins to EMVs"
1st International Workshop on Exosomes (IWE) Paris, France

"EMV biogenesis and Cell Polarity"
International Symposium of Cellular Vesicles: Determination of Cell Fate Providence, RI

"Exosome Biogenesis and Cell Polarity"
Exosomes and Microvesicles 2011 Orlando, FL

2010

"Biogenesis of Exosomes and Microvesicles"
1st Rose Johnstone Memorial Lectureship, McGill University Montreal, Canada

2009

"Exosome Biogenesis and ESCRT Function"
Department of Human Genetics, University of California, Los Angeles Los Angeles, CA

2007

"Targeting Proteins to Exosomes"
"Molecular Membrane Biology" Gordon Conference Andover, NH

"Exosome Biogenesis"
Department of Physiological Chemistry, Ruhr University Bochum, Germany

"Exosome Biogenesis and HIV Budding"
Department of Biochemistry, Tübingen University Tübingen, Germany

"Exosome Biogenesis, HIV Budding, and Cell Polarity"
Symposium speaker Washington, D.C.
47th Annual Meeting of the American Society for Cell Biology

"The Trojan Exosome Hypothesis"
102nd Annual Meeting of Anatomische Gesellschaft Geissen, Germany

2006

“Exosome Biogenesis and HIV Budding”
Department of Biochemistry, University of Alabama

Birmingham, AL

“An Exosomal Origin for HIV”
Department of Medicine, University of California at San Francisco

San Francisco. CA

“Exosome Biogenesis and HIV Budding”
Department of Biochemistry, Duke University

Durham, NC

“Exosome Biogenesis and HIV Budding”
Department of Biochemistry and Molecular Biology
Johns Hopkins University

Baltimore, MD

2005

“Molecular analysis of PEX19-PMP interactions”
“Protein Translocation Across Membranes” Gordon Conference

Andover, NH

“The Trojan Exosome Hypothesis”
Department of Cell Biology, Johns Hopkins University

Baltimore, MD

“The Trojan Exosome Hypothesis”
International Exosome Conference, McGill University

Montreal, Canada

2004

“An Exosomal Origin for HIV”
Department of Cell Biology, Vanderbilt University

Nashville, TN

“Exosome Biogenesis and HIV Budding”
“Endosomes and Endocytosis” Gordon Conference

Andover, NH

“The Trojan Exosome Hypothesis”
Department of Cell Biology
University of North Carolina, Chapel Hill

Chapel Hill, NC

2003

“The Trojan Exosome Hypothesis”
Division of AIDS, NIAID, NIH

Bethesda, MD

“PEX19, a Cytoplasmic Chaperone/Import Receptor for PMPs”
URESCO Conference on Protein Targeting

Spa, Belgium

<p>“The Trojan Exosome Hypothesis” Institute for Human Virology, University of Maryland</p>	Baltimore, MD
<u>2002</u>	
<p>“The Trojan Exosome Hypothesis” Immunology Council</p>	Baltimore, MD
<p>“Controversies in Peroxisome Biogenesis” 2002 Symposium on Peroxisome Biology</p>	San Francisco, CA
<u>2001</u>	
<p>“Phenotypes of PEX11-Deficient Mice” 27th Annual Meeting Federation of European Biochemical Societies.</p>	Lisbon, Portugal
<p>“PEX11-Induced Peroxisome Proliferation” 3rd Annual NIH/Johns Hopkins University Symposium on Cell Biology</p>	Baltimore, MD
<p>“Peroxisome Biogenesis” 25th Carnegie Symposium on Protein Targeting</p>	Baltimore, MD
<u>2000</u>	
<p>“Peroxisome Biogenesis: Molecules and Mechanisms” Department of Chemistry, Frei Universitat, Berlin</p>	Berlin, Germany
<p>“Peroxisome Biogenesis Disorders” Department of Physiological Chemistry, Bochum University</p>	Bochum, Germany
<p>“Recognition of Newly Synthesized Peroxisomal Proteins” Annual Meeting German Society for Biochemistry and Molecular Biology</p>	Munich, Germany
<p>“Peroxisomal Targeting Signals and Their Receptors” “Macromolecular Transport Across Membranes” sponsored by the American Society for Microbiology</p>	Savannah, GA
<u>1999</u>	
<p>“Molecular Basis of Zellweger Spectrum Disorders”</p>	Vancouver, Canada

“Yeast Genetics and Human Disease II”
sponsored by the American Society for Microbiology

“Peroxisomal Biogenesis de novo”
Department of Biochemistry, Academic Medical Centre

Amsterdam, Netherlands

“In silico Approaches to Elucidating Peroxisome Function”
Department of Cell Biology, University of Gottingen

Haren, Netherlands

1998

“Peroxisome Biogenesis Disorders”
CREST Research Conference “Peroxisome Biology”

Fukuoka, Japan

“Molecular Genetics of Zellweger Spectrum Diseases”
Symposium speaker & session chair
50th Annual Meeting of American Society for Human Genetics

Denver, CO

“Mechanisms of Peroxisome Biogenesis and Disease”
Department of Molecular Genetics and Microbiology,
University of Massachusetts

Worcester, MA

1997

“Peroxisome Biogenesis”
Department of Cell and Developmental Biology

Denver, CO

“PEX5 is a Cycling PTS1 Receptor”
29th Nobel Conference, ‘Peroxisome Biogenesis and Function’

Stockholm, Sweden

1996

“PBD Genes and Mutations”
Annual Meeting of the Society for Inherited Metabolic Disorders

Morelos, Mexico

“Peroxisome Biogenesis”
Department of Pharmacology
University of Texas Health Sciences Center

Dallas, TX

“Homology Probing to Identify PBD Genes”
“Yeast Genetics and Human Disease”
sponsored by the American Society for Microbiology

Baltimore, MD

“Identification of Yeast and Human PEX6”

San Francisco, CA

6th International Congress of Cell Biology &
36th Annual Meeting of the American Society for Cell Biology

1995

“PXR1, the human PTS1 receptor”

“International Symposium on Peroxisomes”, Aspen Institute Aspen, CO

“Yeast PAS genes to human PBD genes”

The Institute for Genomic Research Bethesda, MD

1994

“Phenotypes of PBD Cell Lines”

International conference on peroxisomes Amsterdam, Netherlands

“Yeast PAS genes”

Department of Biochemistry, Amsterdam Medical Center Amsterdam, Netherlands

ORGANIZATIONAL ACTIVITIES

Institutional Administrative Appointments:

Co-director, Biological Chemistry Graduate Program 2103-present

Director, Translational Intersession on Metabolism 2010-present
School of Medicine

Strategic Planning Committee for the Medical School Curriculum 2011

Faculty Search Committee 2010-2011
Department of Biological Chemistry

Center Review Committee 2001
Institute for Basic Biomedical Sciences

Admissions Committee 1999
Biological Chemistry, Cellular and Molecular Biology Graduate Program

Professional Societies:

President 2012-present
American Society for Exosomes and Microvesicles

International Society for Extracellular Vesicles	2011-
American Society for Cell Biology	2010-
American Society for Biochemistry and Molecular Biology	2010-
<i>Scientific Conferences:</i>	
Conference Organizer and Session Chair ASEMV 2104 Asilomar, CA; Oct10-13	2014
Conference Organizer and Session Chair 1 st Annual Meeting American Society for Exosomes and Microvesicles, Orlando, FL; Sept 6-9 2013	2013
Session Chair Annual Meeting International Society for Extracellular Vesicles; Boston, MA	2013
Conference Organizer and Chair Exosomes and Microvesicles (Special Interest Subgroup) American Society for Cell Biology Annual Meeting, San Francisco, CA	2012
Conference Co-Organizer and Session Chair Exosomes and Microvesicles 2011, Orlando, FL	2012
Conference Co-Organizer and Session Chair Exosomes and Microvesicles 2011, Orlando, FL	2011
Symposium Organizer and Session Chair International Symposium on Peroxisome Biology, San Francisco, CA	2002
Session Co-Chair Annual Meeting of American Society for Human Genetics, Denver, CO	1998
<i>Editorial activities:</i>	
Editor-in-Chief: <i>Exosomes and Microvesicles</i>	2013-
Editorial Board: <i>Journal of Extracellular Vesicles</i>	2012-

Ad hoc reviewer: Cell, Science, Nature, Molecular Cell, Developmental Cell, Nature Genetics, Nature Cell Biology, Journal of Cell Biology, Journal of Biological Chemistry; EMBO Journal, Journal of Clinical Investigation, Biochemistry, Journal of Cell Science, Traffic, Proceeding of the National Academy of Sciences USA, European Journal of Cell Biology, Human Molecular Genetics; American Journal of Human Genetics, Human Mutation, Journal of Lipid Research

Consulting:

iPierian	2012
GlaxoSmithKline	2001

Grant Review Groups

2013

NIH study section ZRG GGG-R (51) 3/15/2013

2011

NIH study section GDB-7 (EU) 4/7/2011

2009

NIH study section ZRG CB-N (58) 7/20/2009

NIH study section ZRG CB-N (52) 8/13/2009

2008

European Commission 6th Framework Programme 12/2007

NIH study section MBPP 2/7/2008

NIH study section CSF 2/7/2008

NIH study section CSF 10/2/2008

2007

European Commission 6th Framework Programme 12/2007

NIH study section ZRG1 BST-Q (O3) 7/30/2007

NIH study section MBPP 6/11/2007

NIH study section CSF 2/8/2007

2006

NIH study section CSF 2/9/2006

2004

NIH study section CDF-4 10/14/2004

NIH study section CDF-4 6/3/2004

NIH study section CDF-4 2/5/2004

2003

NIH study section CDF-4 10/16/2003

NIH study section CDF-4 6/12/2003

NIH study section CDF-4 2/6/2003

2002

NIH study section CDF-4 10/17/2002

NIH study section CDF-2 6/6/2002

NIH study section CDF-4 2/7/2002

2000

Ad-hoc grant reviewer, MRC, UK

Ad-hoc grant reviewer, NGO, The Netherlands
Ad-hoc grant reviewer, Wellcome Trust, UK

1999

Ad-hoc grant reviewer, MRC, UK
Ad-hoc grant reviewer, NGO, The Netherlands
Ad-hoc grant reviewer, MRC, Australia
Ad-hoc grant reviewer, MRCRM, Canada
Ad-hoc grant reviewer, Wellcome Trust, UK

1998

NIH study section CBY-1 10/7/1998
NIH study section CBY-1 6/3/1998
Ad-hoc grant reviewer, MRC, UK

UNIVERSITY ACTIVITIES/TEACHING

2013

Course Director, "Translational Intersession on Metabolism"
Lecturer, "Translational Intersession on Metabolism"
Small group leader, "Translational Intersession on Metabolism"

2012

Course Co-Director "Scientific Foundations of Medicine" (metabolism)
Lecturer, "Scientific Foundations of Medicine" (metabolism)
Small group leader, "Scientific Foundations of Medicine" (metabolism)

2011

Member Strategic Planning Committee for the School of Medicine Curriculum
Course Co-Director "Scientific Foundations of Medicine" (metabolism)
Lecturer, "Scientific Foundations of Medicine" (metabolism)
Small group leader, "Scientific Foundations of Medicine" (metabolism)
Course Director, "Translational Intersession on Metabolism"
Lecturer, "Translational Intersession on Metabolism"
Small group leader, "Translational Intersession on Metabolism"
Faculty Search Committee, Department of Biological Chemistry

2010

Lecturer, "Scientific Foundations of Medicine" (metabolism)
Small group leader, "Scientific Foundations of Medicine" (metabolism)
Course Co-Director, "Translational Intersession on Metabolism"
Lecturer, "Translational Intersession on Metabolism"
Small group leader, "Translational Intersession on Metabolism"
Faculty Search Committee, Department of Biological Chemistry

Session leader, CMM core discussion class

2009

Lecturer, "Molecules and Cells" (metabolism)
Small group leader, "Molecules and Cells" (metabolism)

2008

Lecturer, "Molecules and Cells" (metabolism)
Small group leader, "Molecules and Cells" (metabolism)
Lecturer (7.5 hrs) "Metabolism" section of Pathways and Regulation (BCMB)

2007

Lecturer, "Molecules and Cells" (metabolism)
Small group leader, "Molecules and Cells" (metabolism)
Lecturer (7.5 hrs) "Metabolism" section of Pathways and Regulation (BCMB)

2006

Lecturer, "Molecules and Cells" (metabolism)
Small group leader, "Molecules and Cells" (metabolism)
Lecturer (9 hrs) "Metabolism" section of Biochemistry and Cell Biology (BCMB)

2005

Lecturer, "Molecules and Cells" (metabolism)
Small group leader, "Molecules and Cells" (metabolism)
Lecturer (9 hrs) "Metabolism" section of Biochemistry and Cell Biology (BCMB)

2004

Lecturer, "Molecules and Cells" (metabolism)
Small group leader, "Molecules and Cells" (metabolism)
Lecturer (9 hrs) "Metabolism" section of Biochemistry and Cell Biology (BCMB)

2003

Lecturer, "Molecules and Cells" (metabolism)
Small group leader, "Molecules and Cells" (metabolism)
Lecturer (9 hrs) "Metabolism" section of Biochemistry and Cell Biology (BCMB)

2002

Lecturer, "Molecules and Cells" (metabolism)
Small group leader, "Molecules and Cells" (metabolism)
Lecturer (9 hrs) "Metabolism" section of Biochemistry and Cell Biology (BCMB)
(9 hrs) "Metabolism" section of Biochemistry and Cell Biology (BCMB)

2001

Lecturer, "Molecules and Cells" (metabolism)

Small group leader, "Molecules and Cells" (metabolism)
Lecturer (9 hrs) "Metabolism" section of Biochemistry and Cell Biology (BCMB)

2000

Lecturer, "Molecules and Cells" (metabolism)
Small group leader, "Molecules and Cells" (metabolism)
Lecturer

1999

Small group leader, "Molecules and Cells" (metabolism)
Course Director, "Laboratory Techniques in Biological Chemistry" (BC graduate program)
Member, Admissions Committee (BCMB program)

1998

Small group leader, "Molecules and Cells" (metabolism)

1997

Small group leader, "Molecules and Cells" (metabolism)
Director, "Core Paper Discussion" (required course for CMM students)

1996

Lecturer, "Molecules and Cells" (metabolism)
Small group leader, "Molecules and Cells" (metabolism)
Director, "Genomics and Disease" (elective in Human Genetics)

1995

Small group leader, "Molecules and Cells" (metabolism)

1994

Lecturer, "Molecules and Cells" (biogenesis of mitochondria and peroxisomes)
Small group leader, "Histology"

1993

Small group leader, "Histology"