Publications:

1. SHALLOWAY, D., P. J. JOHNSON, **E. O. FREED**, D. COULTER, AND W. A. FLOOD. 1987. Transformation of NIH3T3 cells by cotransfection with c-src nuclear oncogenes. *Mol. Cell. Biol.* 7: 3582-3590.

2. **FREED, E. O**., AND R. RISSER. 1987. The role of envelope processing in murine leukemia virus infection. *J. Virol.* 61:2852-2856.

3. **FREED, E. O**., D. J. MYERS, AND R. RISSER. 1989. Mutational analysis of the cleavage sequence of the HIV-1 envelope glycoprotein precursor gp160. *J. Virol.* 63:4670-4675.

4. **FREED, E. O**., AND R. RISSER. 1990. The role of the HIV envelope glycoproteins in cell fusion and the pathogenesis of AIDS. *Bull. Inst. Pasteur* 88:73-110.

5. **FREED, E. O**., D. J. MYERS, AND R. RISSER. 1990. Characterization of the fusion domain of the human immunodeficiency virus type 1 envelope glycoprotein gp41. *Proc. Natl. Acad. Sci. USA* 87: 4650-4654.

6. **FREED, E. O**., D. J. MYERS, AND R. RISSER. 1991. Identification of the principal neutralizing determinant of human immunodeficiency virus type 1 as a fusion domain. *J. Virol.* 65:190-194.

7. **FREED, E. O**., AND R. RISSER. 1991. Identification of conserved residues in the human immunodeficiency virus type 1 principal neutralizing determinant that are involved in fusion. *AIDS Res. Hum. Retroviruses* 7:807-811.

8. **FREED, E. O**., E. L. DELWART, G. L. BUCHSCHACHER, JR., AND A. T. PANGANIBAN. 1992. A mutation in the human immunodeficiency virus type 1 transmembrane glycoprotein gp41 dominantly interferes with fusion and infectivity. *Proc. Natl. Acad. Sci. USA* 89:70-74.

9. DELWART, E. L., G. L. BUCHSCHACHER, JR., **E. O. FREED**, AND A. T. PANGANIBAN. 1992. Analysis of HIV-1 envelope mutants by genetic complementation. *AIDS Res. Hum. Retroviruses* 8: 1669-1677.

10. **FREED, E. O**., AND D. J. MYERS. 1992. Identification and characterization of fusion and processing domains of the human immunodeficiency virus type 2 envelope glycoprotein. *J. Virol.* 66:5472-5478.

11. CHIOU, S.-H., **E. O. FREED**, A. PANGANIBAN, AND W. R. KENEALY. 1992. Effects of deletions in the V3 loop on HIV-1 envelope glycoprotein function. *AIDS Res. Hum. Retroviruses* 8:1611-1618.

12. BUCHSCHACHER, G. L., JR., **E. O. FREED**, AND A. T. PANGANIBAN. 1992. Cells induced to express a human immunodeficiency virus type 1 envelope gene mutant inhibit the spread of wild-type virus. *Hum. Gene Ther.* 3:391-397.

13. **FREED, E. O**., AND M. A. MARTIN. 1994. Evidence for a functional interaction between the V1/V2 and C4 domains of the human immunodeficiency virus type 1 envelope glycoprotein gp120. *J. Virol.* 68: 2503-2512.

14. **FREED, E. O**., AND M. A. MARTIN. 1994. HIV-1 infection of non-dividing cells. *Nature* 369:107-108.

15. **FREED, E. O**., J. M. ORENSTEIN, A. J. BUCKLER-WHITE, AND M. A. MARTIN, M. 1994. Single amino acid changes in the human immunodeficiency virus type 1 matrix protein block virus particle production. *J. Virol.* 68:5311-5320.

16. BUCHSCHACHER, G. L., JR., **E. O. FREED**, AND A. T. PANGANIBAN. 1995. The effects of second-site mutations on dominant interference by an HIV-1 envelope glycoprotein mutant. *J. Virol.* 69:1344-1348.

17. **FREED, E. O**., AND M. A. MARTIN. 1995. Virion incorporation of envelope glycoproteins with long but not short cytoplasmic tails is blocked by specific, single amino acid substitutions in the human immunodeficiency virus type 1 matrix. *J. Virol.* 69:1984-1989.

18. ENGLUND, G., T. S. THEODORE, **E. O. FREED**, A. ENGLEMAN, AND M. A. MARTIN. 1995. Integration is required for productive infection of monocyte-derived macrophages by human immunodeficiency virus type 1. *J. Virol.* 69:3216-3219.

19. **FREED, E. O**., G. ENGLUND, AND M. A. MARTIN. 1995. Role of the basic domain of human immunodeficiency virus type 1 matrix in macrophage infection. *J. Virol.* 69:3949-3954.

20. **FREED, E. O**., AND M. A. MARTIN. 1995. The role of human immunodeficiency virus type 1 envelope glycoproteins in virus infection. *J. Biol. Chem.* 270:23883-23886.

21. HUANG, M., J. M. ORENSTEIN, M. A. MARTIN, AND **E. O. FREED**. 1995. $p6^{Gag}$ is required for particle production from full-length human immunodeficiency virus type 1 molecular clones expressing protease. *J. Virol*. 69:6810-6818.

22. **FREED, E. O**., AND M. A. MARTIN. 1995. Characterization of HIV-1 matrix and gp41 domains involved in Env incorporation into virions. In: Retroviruses of Human AIDS and Related Animal Diseases. Cent Gardes Symposium, Paris, pp. 111-116.

23. **FREED, E. O**., AND M. A. MARTIN. 1996. Domains of the human immunodeficiency virus type 1 matrix and gp41 cytoplasmic tail required for envelope incorporation into virions. *J. Virol.* 70:341-351.

24. DELAHUNTY, M. D., I. RHEE, **E. O. FREED**, AND J. S. BONIFACINO. 1996. Mutational analysis of the fusion peptide of the human immunodeficiency virus type 1: Identification of critical glycine residues. *Virology* 218:94-102.

25. WILLEY, R. L., R. SHIBATA, **E. O. FREED**, M. W. CHO, AND M. A. MARTIN. 1996. Differential glycosylation, virion incorporation, and sensitivity to neutralizing antibodies of human immunodeficiency virus type 1 envelope produced from infected primary T-lymphocyte and macrophage cultures. *J. Virol.* 70: 6431-6436.

26. **FREED, E. O**. 1997. Retroviruses. In: The Encyclopedia of Cancer, Volume III. Academic Press, Inc., pp. 1585-1590.

27. **FREED, E. O**., G. ENGLUND, F. MALDARELLI, AND M. A. MARTIN. 1997. Phosphorylation of residue 131 of HIV-1 matrix is not required for macrophage infection. *Cell* 88:171-174.

28. **FREED, E. O**. 1997. Acquired immune deficiency syndrome – Virology. In: The Encyclopedia of Human Biology, 2nd Edition, Volume I. Academic Press, Inc., pp. 49-55.

29. ONO, A., M. HUANG, AND **E. O. FREED**. 1997. Characterization of human immunodeficiency virus type 1 matrix revertants: Effects on virus assembly, Gag processing, and Env incorporation into virions. *J. Virol.* 71:4409-4418.

30. KIERNAN, R. E., A. ONO, G. ENGLUND, AND **E. O. FREED**. 1998. Role of matrix in an early postentry step in the human immunodeficiency virus type 1 life cycle. *J. Virol.* 72:4116-4126.

31. **FREED, E. O**. 1998. HIV-1 Gag proteins: Diverse functions in the virus life cycle. *Virology* 251:1-15.

32. KIERNAN, R. E., AND **E. O. FREED**. 1998. Cleavage of the murine leukemia virus transmembrane Env protein by human immunodeficiency virus type 1 protease: Transdominant inhibition by matrix mutations. *J. Virol.* 72:9621-9627.

33. ONO, A., AND **E. O. FREED**. 1999. Binding of human immunodeficiency virus type 1 Gag to membrane: Role of the matrix amino terminus. *J. Virol.* 73:4136-4144.

34. KIERNAN, R. E., A. ONO, AND **E. O. FREED**. 1999. Reversion of a human immunodeficiency virus type 1 matrix mutation affecting Gag membrane binding, endogenous reverse transcriptase activity, and virus infectivity. *J. Virol.* 73:4728-4737.

35. TANG, Y., U. WINKLER, **E. O. FREED**, T. A. TORREY, W. KIM, H. LI, S. P. GOFF, AND H. C. MORSE III. 1999. Cellular motor protein KIF-4 associates with retroviral Gag. *J. Virol.* 73:10508-10513.

36. MURAKAMI, T., AND **E. O. FREED**. 2000. The long cytoplasmic tail of gp41 is required in a cell type-dependent manner for HIV-1 envelope glycoprotein incorporation into virions. *Proc. Natl. Acad. Sci. USA* 97:343-348.

37. ONO, A., J. M. ORENSTEIN, AND **E. O. FREED**. 2000. Role of the Gag matrix domain in targeting human immunodeficiency virus type 1 assembly. *J. Virol.* 74:2855-2866.

38. MURAKAMI, T., AND **E. O. FREED**. 2000. Genetic evidence for an interaction between human immunodeficiency virus type 1 matrix and α-helix 2 of the gp41 cytoplasmic tail. *J. Virol.* 74:3548-3554.

39. ONO, A., D. DEMIROV, AND **E. O. FREED**. 2000. Relationship between human immunodeficiency virus type 1 Gag multimerization and membrane binding. *J. Virol.* 74:5142-5150.

40. HALVAS, E. K., E. S. SVAROVSKAIA, **E. O. FREED**, AND V. K. PATHAK. 2000. Wild-type and YMDD mutant murine leukemia virus reverse transcriptases are resistant to 2',3'-dideoxy-3'-thiacytidine. *J. Virol.* 74:6669-6674.

41. **FREED, E. O**., AND M. A. MARTIN. 2001. The molecular and biological properties of the human immunodeficiency virus. In: The Molecular Basis of Blood Diseases, 3rd Edition, Chapter 27 (G. Stamatoyannopoulos, P. W. Majerus, R. M. Perlmutter, and H. Varmus, eds.). W.B. Saunders Co., Philadelphia, pp. 861-915.

42. **FREED, E. O**., AND M. A. MARTIN. 2001. HIVs and their replication. In: Fields Virology, 4th Edition, Chapter 59 (D. M. Knipe and P. M. Howley, eds.). Lippincott, Williams, and Wilkins, Philadelphia, pp. 1971-2041.

43. **FREED, E. O**., AND M. A. MARTIN. 2001. HIVs and their replication. In: Fundamental Virology, 4th Edition, Chapter 28 (D. M. Knipe and P. M. Howley, eds.). Lippincott, Williams, and Wilkins, Philadelphia, pp. 913-983.

44. BANKS, W. A., **E. O. FREED**, K. M. WOLF, S. M. ROBINSON, AND V. KUMAR. 2001. Transport of HIV-1 pseudoviruses across the blood-brain barrier: Role of envelope proteins and adsorptive endocytosis. *J. Virol.* 75:4681-4691.

45. TANG, S., T. MURAKAMI, B. E. AGRESTA, S. CAMPBELL, **E. O. FREED**, AND J. G. LEVIN. 2001. A class of human immunodeficiency virus type 1 N-terminal capsid mutants that exhibits aberrant core morphology and is blocked in initiation of reverse transcription in infected cells. *J. Virol.* 75:9357-9366.

46. ONO, A., AND **E. O. FREED**. 2001. Plasma membrane rafts play a critical role in HIV-1 assembly and release. *Proc. Natl. Acad. Sci. USA* 98:13925-13930.

47. ONO, A., AND **E. O. FREED**. 2001. Role of matrix in HIV-1 replication. *Recent Res. Dev. Virol*. 3: 483-494.

48. **FREED, E. O**. 2001. HIV-1 replication. In: Lentiviral Vectors for Gene Therapy, Chapter 2 (G. L. Buchschacher, ed.). Landes Bioscience, Georgetown, TX, pp. 13-33.

49. DEMIROV, D. G., J. M. ORENSTEIN, AND **E. O. FREED**. 2002. The late domain of human immunodeficiency virus type 1 p6 promotes virus release in a cell type-dependent manner. *J. Virol*. 76: 105-117.

50. DEMIROV, D. G., A. ONO, J. M. ORENSTEIN, AND **E. O. FREED**. 2002. Overexpression of the N-terminal domain of TSG101 inhibits HIV-1 budding by blocking late domain function. *Proc. Natl. Acad. Sci. USA* 99:955-960.

51. **FREED, E. O**. 2002. Viral late domains. *J. Virol*. 76:4679-4687.

52. **FREED, E. O**. 2002. Rafting with Ebola. *Science* 296:279.

53. FARR, S. A., W. A. BANKS, K. UEZU, **E. O. FREED**, V. B. KUMAR, AND J. E. MORLEY. 2002. Mechanisms of HIV type 1-induced cognitive impairment: Evidence for hippocampal cholinergic involvement with overstimulation of the VIPergic system by the viral coat protein core. *AIDS Res. Hum. Retroviruses* 18:1189-1195.

54. **FREED, E. O**. 2003. The HIV-TSG101 interface: Recent advances in a budding field. *Trends Microbiol*. 11:56-59.

55. GOILA-GAUR, R., D. G. DEMIROV, J. M. ORENSTEIN, A. ONO, AND **E. O. FREED**. 2003. Defects in human immunodeficiency virus budding and endosomal sorting induced by TSG101 overexpression. *J. Virol.* 77:6507-6519.

56. LI, F., R. GOILA-GAUR, K. SALZWEDEL, N. R. KILGORE, M. REDDICK, C. MATALLANA, A. CASTILLO, D. ZOUMPLIS, D. E. MARTIN, J. M. ORENSTEIN, G. P. ALLAWAY, **E. O. FREED**, AND C. T. WILD. 2003. A new class of potent HIV inhibitors disrupts core condensation by targeting a late step in Gag processing. *Proc. Natl. Acad. Sci. USA* 100:13555-13560.

57. TANG, S., T. MURAKAMI, N. CHENG, A. C. STEVEN, **E. O. FREED**, AND J. G. LEVIN. 2003. Human immunodeficiency virus type 1 N-terminal capsid mutants containing cores with abnormally high levels of capsid protein and virtually no reverse transcriptase. *J. Virol.* 77:12592-12602.

58. MURAKAMI, T., S. ABLAN, **E. O. FREED**, AND Y. TANAKA. 2004. Regulation of human immunodeficiency virus type 1 Env-mediated membrane fusion by Gag processing. *J. Virol*. 78:1026-1031.

59. SHEHU-XHILAGA, M., S. ABLAN, D. G. DEMIROV, C. CHEN, R. C. MONTELARO, AND **E. O. FREED**. 2004. Late domain-dependent inhibition of equine infectious anemia virus budding. *J. Virol*. 78:724-732.

60. ONO, A., AND **E. O. FREED**. 2004. Cell-type-dependent targeting of human immunodeficiency virus type 1 assembly to the plasma membrane and the multivesicular body. *J. Virol.* 78:1552-1563.

61. **FREED, E. O**. 2004. HIV-1 and the host cell: An intimate association. *Trends Microbiol*. 12:170-177.

62. DEMIROV, D. G., AND **E. O. FREED**. 2004. Retrovirus budding. *Virus Res.* 106:87-102.

63. **FREED, E. O**. 2004. Mechanisms of enveloped virus release (preface). *Virus Res.* 106:85-86.

64. SVAROVSKAIA, E. S., H. XU, BARR, R., R. J. GORELICK, A. ONO, **E. O. FREED**, W.-S. HU, AND V. K. PATHAK. 2004. Human APOBEC3G is incorporated into HIV-1 virions through interactions with viral and nonviral RNAs. *J. Biol. Chem*. 279:35822-35828.

65. ONO, A., S. D. ABLAN, S. J. LOCKETT, K. NAGASHIMA, AND **E. O. FREED**. 2004. Phosphatidylinositol (4,5) bisphosphate regulates HIV-1 Gag targeting to the plasma membrane. *Proc. Natl. Acad. Sci. USA* 101:14889-14894.

66. **FREED, E. O**., AND S. R. ROSS. 2004. Retroviruses 2004: Review of the 2004 Cold Spring Harbor Retroviruses conference. *Retrovirology* 1:25.

67. SKLAR, P. A., H. MASUR, J. VOELL, A. ONO, **E. O. FREED,** AND F. MALDARELLI. 2005. Curb your enthusiasm: Statins do not have a consistent antiviral effect in chronically HIV-infected individuals on antiretroviral therapy. *AIDS* 19:1109-1111.

68. ONO, A., AND **E. O. FREED**. 2005. The role of lipid rafts in virus replication. *Adv. Virus Res.* 64: 311-358.

69. ONO, A., A. A. WAHEED, A. JOSHI, AND **E. O. FREED**. 2005. Association of human immunodeficiency virus type 1 Gag with membrane does not require highly basic sequences in nucleocapsid: Use of a novel Gag multimerization assay. *J. Virol.* 79:14131-14140.

70. FU, W., Q. DANG, K. NAGASHIMA, **E. O. FREED**, V. K. PATHAK, AND W.-S. HU. 2006. Effects of Gag mutation and processing on retroviral dimeric RNA maturation. *J. Virol*. 80:1242-1249.

71. DAVIS, M. R., J. JIANG, J. ZHOU, **E. O. FREED**, AND C. AIKEN. 2006. A mutation in the human immunodeficiency virus type 1 Gag protein destabilizes the interaction of the envelope protein subunits gp120 and gp41. *J. Virol*. 80:2405-2417.

72. LI, F., D. ZOUMPLIS, C. MATALLANA, N. R. KILGORE, M. REDDICK, C. S. ADAMSON, K. SALZWEDEL, D. E. MARTIN, G. P. ALLAWAY, **E. O. FREED**, AND C. T. WILD. 2006. Determinants of activity of the HIV-1 maturation inhibitor PA-457. *Virology* 356:217-224.

73. WAHEED, A. A., S. ABLAN, M. K. MANKOWSKI, J. E. CUMMINS, R. G. PTAK, C. P. SCHAFFNER, AND **E. O. FREED**. 2006. Inhibition of HIV-1 replication by amphotericin B methyl ester. *J. Biol. Chem*. 39:28699-28711.

74. JOSHI, A. K. NAGASHIMA, AND **E. O. FREED**. 2006. Mutation of dileucine-like motifs in human immunodeficiency virus type 1 capsid disrupts virus assembly, Gag-Gag interactions, Gag-membrane binding, and virion maturation. *J. Virol.* 80:7939-7951.

75. **FREED, E. O**. 2006. HIV-1 Gag: Flipped out over $PI(4,5)P_2$. *Proc. Natl. Acad. Sci. USA* 103:11101-11102.

76. ADAMSON, C. S., S. D. ABLAN, I. BOERAS, K. SALZWEDEL, R. GOILA-GAUR, F. SOHEILIAN, K. NAGASHIMA, F. LI, M. SAKALIAN, C. T. WILD, AND **E. O. FREED**. 2006. In vitro resistance to the human immunodeficiency virus type 1 maturation inhibitor PA-457 (bevirimat). *J. Virol.* 80:10957-10971.

77. LIU, F., A. G. STEPHEN, C. ADAMSON, K. GOUSSET, J. AMAN, **E. O. FREED**, R. J. FISHER, AND T. R. BURKE, JR. 2006. Hydrazone and hydrazide-containing N-substituted glycines as peptoid surrogates for expedited library synthesis: Application to the preparation of Tsg101-directed HIV-1 budding antagonists. *Org. Lett*. 8:5165-5168.

78. **FREED, E. O**., AND A. J. MOULAND. 2006. Meeting review: The Cell Biology of HIV-1 and Other Retroviruses. *Retrovirology* 3:77-87.

79. TANG, S. ABLAN, M. DUECK, W. AYALA-LÓPEZ, B. SOTO, M. CAPLAN, K. NAGASHIMA, I. K. HEWLETT, **E. O. FREED**, AND J. G. LEVIN. 2007. Second-site suppressors of an aromatic mutation in the N-terminal domain of the human immunodeficiency type 1 capsid protein. *Virology* 359:105-115.

80. **FREED, E. O**., AND M. A. MARTIN. 2007. HIVs and their replication. Chapter 57. In: Fields Virology, 5th Edition (D. M. Knipe and P. M. Howley, eds.). Lippincott, Williams, and Wilkins, Philadelphia, pp. 2107-2186.

81. MUNSHI, U., J. KIM, K. NAGASHIMA, J. H. HURLEY, AND **E. O. FREED**. 2007. An Alix fragment potently inhibits HIV-1 budding: Characterization of binding to retroviral YPXL late domains. *J. Biol. Chem.* 282:3847-3855.

82. SAAD, J. S., E. LOELIGER, P. LUNCSFORD, M. LIRIANO, J. TAI, A. KIM, J. MILLER, A. JOSHI, **E. O. FREED**, AND M. F. SUMMERS. 2007. Point mutations in the HIV-1 matrix protein turn off the myristyl switch. *J. Mol. Biol*. 366:574-585.

83. ONO, A., A. A. WAHEED, AND **E. O. FREED**. 2007. Depletion of cellular cholesterol inhibits membrane binding and higher-order multimerization of human immunodeficiency virus type 1 Gag. *Virology* 360:27-35.

84. LEE, S., A. JOSHI, K. NAGASHIMA, **E. O. FREED**, AND J. H. HURLEY. 2007. Structural basis for viral late domain binding to Alix. *Nat. Struct. Mol. Biol.* 14:194-199.

85. WAHEED, A. A., S. D. ABLAN, J. D. ROSER, R. C. SOWDER, C. P. SCHAFFNER, E. CHERTOVA, AND **E. O. FREED**. 2007. HIV-1 escape from the entry-inhibiting effects of a cholesterol-binding compound via cleavage of gp41 by the viral protease. *Proc. Natl. Acad. Sci. USA* 104:8467-8471.

86. GARG, H., A. JOSHI, **E. O. FREED**, AND R. BLUMENTHAL. 2007. Site-specific mutations in HIV-1 gp41 reveal a correlation between HIV-1-mediated bystander apoptosis and fusion/hemifusion. *J. Biol. Chem*. 282:16899-16906.

87. ADAMSON, C.A., AND **E. O. FREED**. 2007. Human immunodeficiency virus type 1 assembly, release and maturation. In: HIV-1: Molecular Biogenesis and Pathogenesis: Viral Mechanisms, 2nd Edition, a volume of Advances in Pharmacology (K.-T. Jeang, ed.). Elsevier Inc., pp. 347-387.

88. WAHEED, A. A., AND **E. O. FREED**. 2007. Influenza virus not crafty enough to escape viperin. *Cell Host Microbe* 2:71-72.

89. FUJII, K, J. H. HURLEY, AND **E. O. FREED**. 2007. Beyond Tsg101: Alix's role in ESCRTing HIV-1. *Nature Rev. Microbiol*. 5:912-916.

90. JOSHI, A., AND **E. O. FREED**. 2007. HIV-1 Gag trafficking. *Future HIV Ther.* 1:427-438.

91. LUTTGE, B. G., M. SHEHU-XHILAGA, D. G. DEMIROV, C. S. ADAMSON, F. SOHEILIAN, K. NAGASHIMA, A. G. STEPHEN, R. J. FISHER, AND **E. O. FREED**. 2008. Molecular characterization of feline immunodeficiency virus budding. *J. Virol*. 82:2106-2119.

92. VIARD, M., S. D. ABLAN, M. ZHOU, T. D VEENSTRA, **E. O FREED**, Y. RAVIV, AND R. BLUMENTHAL. 2008. Photo-induced reactivity of the HIV-1 envelope glycoprotein with a membrane-embedded probe reveals insertion of portions of the HIV-1 gp41 cytoplasmic tail into the viral membrane. *Biochemistry* 47:1977-1983.

93. JOSHI, A., H. GARG, K. NAGASHIMA, J. S. BONIFACINO, AND **E. O. FREED**. 2008. GGA and Arf proteins modulate retrovirus assembly and release. *Mol. Cell* 30:227-238.

94. GOUSSET, K., S. D. ABLAN, L. V. COREN, A. ONO, F. SOHEILIAN, K. NAGASHIMA, D. E. OTT, AND **E. O. FREED**. 2008. Real-time visualization of HIV-1 Gag trafficking in infected macrophages. *PLoS Pathog.* 4(3):e1000015.

95. ZHANG, H., Q. ZHAO, S. BHATTACHARYA, A. A. WAHEED, X. TONG, A. HONG, S. HECK, F. CURRELI, M. GOGER, D. COWBURN, **E. O. FREED**, AND A. K. DEBNATH. 2008. A cell-penetrating helical peptide as a potential HIV-1 inhibitor. *J. Mol. Biol.* 378:565-580.

96. ADAMSON, C. S., AND **E. O. FREED**. 2008. Recent progress in antiretrovirals: Lessons from resistance. *Drug Discov. Today* 13:424-432.

97. LIU, F., A. G. STEPHEN, A. A. WAHEED, M. J. AMAN, **E. O. FREED**, R. J. FISHER, AND T. R. BURKE, JR. 2008. SAR by oxime-containing peptide libraries: Application to Tsg101 ligand optimization as an approach towards new anti-HIV-1 therapeutics. *ChemBioChem*. 9:2000-2004.

98. JOSHI, A., U. MUNSHI, S. D. ABLAN, K. NAGASHIMA, AND **E. O. FREED**. 2008. Functional replacement of a retroviral late domain by ubiquitin fusion. *Traffic* 9:1972-1983.

99. WAHEED, A. A., S. D. ABLAN, F. SOHEILIAN, K. NAGASHIMA, A. ONO, C. P. SCHAFFNER, AND **E. O. FREED**. 2008. Inhibition of human immunodeficiency virus type 1 assembly and release by the cholesterol-binding compound amphotericin B methyl ester: Evidence for Vpu dependence. *J. Virol.* 82: 9776-9781.

100. SAAD, J. S., S. D. ABLAN, R. H. GHANAM, A. KIM, K. ANDREWS, K. NAGASHIMA, **E. O. FREED***, AND M. F. SUMMERS*. 2008. Structure of the myristylated HIV-2 MA protein and the role of PI(4,5)P_2 in membrane targeting. *J. Mol Biol.* 382:434-447. (*Joint corresponding author)

101. GREENE, W. C., Z. DEBYSER, Y. IKEDA, **E. O. FREED**, E. STEPHENS, W. YONEMOTO, R. BUCKHEIT, J. ESTE, AND T. CIHLAR. 2008. Novel targets for HIV therapy. *Antiviral Res*. 80:251-265.

102. WAHEED, A. A., AND **E. O. FREED**. 2008. "Point of View": Peptide inhibitors of HIV egress. *ACS Chem. Biol.* 3:745-747.

103. WAHEED, A. A., A. ONO, AND **E. O. FREED**. 2009. Methods for the study of HIV-1 assembly. In: HIV Protocols, 2nd Edition, Volume 485 (V.R. Prasad and G.V. Kalpana, eds.). Humana Press, pp. 163-184.

104. ADAMSON, C. S., K. WAKI, S. D. ABLAN, K. SALZWEDEL, AND **E. O. FREED**. 2009. Impact of human immunodeficiency virus type 1 resistance to protease inhibitors on evolution of resistance to the maturation inhibitor bevirimat (PA-457). *J. Virol*. 83:4884-4894.

105. JOSHI, A., S. D. ABLAN, F. SOHEILIAN, K. NAGASHIMA, AND **E. O. FREED**. 2009. Evidence that productive human immunodeficiency virus type 1 assembly can occur in an intracellular compartment. *J. Virol.* 83:5375-5387.

106. BENNETT, A. E., K. NARAYAN, D. SHI, L. HARTNELL, K. GOUSSET, H. HE, B. C. LOWEKAMP, T. S. YOO, D. BLISS, **E. O. FREED**, AND S. SUBRAMANIAM. 2009. Ion-abrasion scanning electron microscopy reveals surface-connected tubular conduits in HIV-infected macrophages. *PLoS Pathog.* 5(9): e1000591.

107. WAHEED, A. A., AND **E. O. FREED**. 2009. Lipids and membrane microdomains in HIV-1 replication. *Virus Res*. 143:162-176.

108. **FREED, E. O.** 2009. Welcome to Viruses: A new open-access, multidisciplinary forum for virology. *Viruses* 1:1-2.

109. ADAMSON, C. S., K. SALZWEDEL, AND **E. O. FREED**. 2009. Virus maturation as a novel HIV-1 therapeutic target. *Expert Opin. Ther. Targets* 13:895-908.

110. ADAMSON, C. S., AND **E. O. FREED**. 2009. Anti-HIV therapeutics: From FDA-approved drugs to hypothetical future targets. *Mol. Intervent*. 9:70-74.

111. FUJII, K., U. M. MUNSHI, S. D. ABLAN, D. G. DEMIROV, F. SOHEILIAN, K. NAGASHIMA, A. G. STEPHEN, R. J. FISHER, AND **E. O. FREED**. 2009. Functional role of Alix in HIV-1 replication. *Virology* 391:284-292.

112. JOSHI, A., K. NAGASHIMA, AND **E. O. FREED**. 2009. Defects in cellular sorting and retroviral assembly induced by GGA overexpression. *BMC Cell Biol*. 10:72.

113. LUTTGE, B. G., AND **E. O. FREED**. 2010. FIV Gag: Virus assembly and host-cell interactions. *Vet. Immunol. Immunopath.* 134:3-13.

114. LIU, F., A. G. STEPHEN, A. A. WAHEED, **E. O. FREED**, R. J. FISHER AND T. R. BURKE, JR. 2010. Application of ring-closing metathesis macrocyclization to the development of Tsg101-binding antagonists. *Bioorg. Med. Chem. Lett*. 20:318-321.

115. ADAMSON, C. S., AND **E. O. FREED**. 2010. Novel approaches to inhibiting HIV-1 replication. *Antivir. Res.* 85:119-141.

116. CHECKLEY, MA, B. L. LUTTGE, F. SOHEILIAN, K. NAGASHIMA, AND **E. O. FREED**. 2010. The capsid-spacer peptide 1 Gag processing intermediate is a dominant-negative inhibitor of HIV-1 maturation. *Virology* 400:137-144.

117. WAHEED, A. A., S. D. ABLAN, R. C. SOWDER, J. D. ROSER, C. P. SCHAFFNER, E. CHERTOVA, AND **E. O. FREED**. 2010. Effect of mutations in the human immunodeficiency virus type 1 protease on cleavage of the gp41 cytoplasmic tail. *J. Virol*. 84:3121-3126.

118. ADAMSON, C. S., M. SAKALIAN, K. SALZWEDEL, AND **E. O. FREED**. 2010. Polymorphisms in Gag spacer peptide 1 confer varying levels of resistance to the human immunodeficiency virus type 1 maturation inhibitor bevirimat. *Retrovirology* 7:36.

119. WAHEED, A. A., AND **E. O. FREED**. 2010. The role of lipids in retrovirus replication. *Viruses* 2:1146-1180.

120. **FREED, E. O.**, AND A. SIMON. 2010. Review of EMBO World Lecture Course "Virus-Host: Partners in Pathogenesis." *Future Virol.* 5:379-383.

121. FLEDDERMAN, E., K. FUJII, R. H. GHANAM, K. WAKI, P. PREVELIGE, **E. O. FREED**, AND J. S. SAAD. 2010. Myristate exposure in the HIV-1 matrix protein is modulated by pH. *Biochemistry* 49: 9551-9562.

122. IM, Y. J., L. KUO, X. REN, P. BURGOS, X.-Z. ZHAO, T. BURKE, J. S. BONIFACINO, **E. O. FREED**, AND J. H. HURLEY. 2010. Crystallographic and functional analysis of the ESCRT-1/HIV-1 Gag PTAP interaction. *Structure* 18:1536-1547.

123. WAKI, K., AND **E. O. FREED**. 2010. Macrophages and cell-cell spread of HIV-1. *Viruses* 2:1603-1620.

124. KELLER, P. W., C. S. ADAMSON, J. B. HEYMANN, **E. O. FREED**, AND A. C. STEVEN. 2011. The HIV-1 maturation inhibitor bevirimat stabilizes the immature Gag lattice. *J. Virol*. 85:1420-1428.

125. JOSHI, A., H. GARG, S. ABLAN, **E. O. FREED**, K. NAGASHIMA, N. MANJUNATH, AND P. SHANKAR. 2011. Targeting the HIV entry, assembly and release pathway: Validation of dominant negative Gag and envelope mutants for anti-HIV gene therapy. *Virology* 415:95-106.

126. LU, W., K. SALZWEDEL, **E. O. FREED**, C. T. WILD, AND F. LI. 2011. A single polymorphism in HIV-1 subtype C SP-1 is sufficient to confer natural resistance to the maturation inhibitor, bevirimat. *Antimicrob. Agents Chemother*. 55:3324-3329.

127. KIM, S.-E., F. LIU, Y. J. IM, A. G. STEPHEN, A. A. WAHEED, **E. O. FREED**, R. J. FISHER, J. H. HURLEY, AND T. R. BURKE. 2011. Identification of new binding interactions with the tumor susceptibility gene 101 (Tsg101) protein using modified HIV-1 Gag-p6-derived peptide ligands. *ACS Chem. Lett.* 2:337-341.

128. BALASUBRAMANIAM, M., AND **E. O. FREED**. 2011. New insights into HIV assembly and trafficking. *Physiology* 26:236-251.

129. ZHANG, H., F. CURRELI, X. ZHANG, S. BHATTACHARYA, A. A. WAHEED, A. COOPER, D. COWBURN, **E. O. FREED**, AND A. K. DEBNATH. 2011. Antiviral activity of α-helical stapled peptides designed from the HIV-1 capsid dimerization domain. *Retrovirology* 8:28.

130. CHECKLEY, M. A., B. G. LUTTGE, AND **E. O. FREED**. 2011. HIV-1 envelope glycoprotein biosynthesis, trafficking, and incorporation. *J. Mol. Biol*. 410:582-608.

131. JOSHI A., H. GARG, S. D. ABLAN, **E. O. FREED**. 2011. Evidence of a role for soluble N-ethylmaleimide-sensitive factor attachment protein receptor (SNARE) machinery in HIV-1 assembly and release. *J. Biol. Chem.* 286:29861-29871.

132. JIANG, J., S. ABLAN, S. DEREBAIL, K. HERCIK, F. SOHEILIAN, J. A. THOMAS, S. TANG, I. HEWLETT, K. NAGASHIMA, R. J. GORELICK, **E. O. FREED**, AND J. G. LEVIN. 2011. The interdomain linker region of HIV-1 capsid protein is a critical determinant of proper core assembly and stability. *Virology* 421:253-265.

133. WAHEED, A. A., AND **E. O. FREED.** 2012. HIV-1 Gag as a target for antiviral therapy. *AIDS Res. Hum. Retroviruses* 28:54-75.

134. KUO, L., AND **E. O. FREED**. 2012. Commentary: ARRDC1 as a mediator of microvesicle budding. *Proc. Natl. Acad. Sci. USA* 109:4025-4026.

135. MATREYEK K. A., I. OZTOP, **E. O. FREED**, AND A. ENGELMAN. 2012. Viral latency and potential eradication of HIV-1. *Expert Rev. Anti-Infect. Ther.* 10:855-857.

136. WAKI, K., S. R. DURELL, F. SOHEILIAN, K. NAGASHIMA, S. L. BUTLER, AND **E. O. FREED**. 2012. Structural and functional insights into the HIV-1 maturation inhibitor binding pocket. *PLoS Pathog*. 8(11):e1002997.

137. **FREED, E. O**., AND M. A. MARTIN. 2013. Human immunodeficiency viruses: Replication. In: Fields Virology, 6th Edition (D. M. Knipe and P. M. Howley, eds.). Lippincott, Williams, and Wilkins, Philadelphia, pp. 1502-1560.

138. KEREN-KAPLAN, T., E. FARKASH, L. S. KUO, M. JERABEK-WILLEMSEN, N. BLUTRAICH, I. ATTALI, S. ARTZI, O. LEVEN-KRAVETS, M. ESTRIN, A. PERI, **E. O. FREED**, H. J. WOLFSON, AND G. PRAG. 2013. Structure-based in silico identification of ubiquitin-binding domains provides insights into the ALIX-V:ubiquitin complex and retrovirus budding. *EMBO J.* 32:538-551.

139. CHECKLEY, M.A., B. G. LUTTGE, P. Y. MERCREDI, S. K. KYERE, J. DONLAN, T. MURAKAMI, M. F. SUMMERS, S. COCKLIN, AND **E. O. FREED**. 2013. Reevaluation of the requirement for TIP47 in human immunodeficiency virus type 1 envelope glycoprotein incorporation. *J. Virol*. 87:3561-3570.

140. AFONIN K. A., M. VIARD, A. N. MARTINS, S. J. LOCKETT, A. E. MACIAG, **E. O. FREED**, E. HELDMAN, L. JAEGER, R. BLUMENTHAL, AND B. A. SHAPIRO. 2013. Activation of RNAi with auto-recognizing R/DNA chimeric hybrids. *Nature Nanotech*. 8:296-304.

141. KELLER, P.W., R. K. HUANG, M. ENGLAND, K. WAKI, N. CHENG, J. B. HEYMANN, R. C. CRAVEN, **E. O. FREED**, AND A. C. STEVEN. 2013. A two-pronged structural analysis of retroviral maturation suggests core formation proceeds by a disassembly-reassembly pathway rather than displacive transition. *J. Virol*. 87:13655-13664.

142. ZHANG, H., F. CURRELI, A. A. WAHEED, P. Y. MERCREDI, M. MEHTA, P. BHARGAVA, D. SCACALOSSI, X. TONG, S. LEE, A. COOPER, M. F. SUMMERS, **E. O. FREED**, AND A. K. DEBNATH. 2013. Dual-acting stapled peptides target both HIV-1 entry and assembly. *Retrovirology* 10:136.

143. TEDBURY, P. R., S. D. ABLAN, AND **E. O. FREED**. 2013. Global rescue of defects in HIV-1 envelope glycoprotein incorporation: Implications for matrix structure. *PLoS Pathog.* 9(11):e1003739.

144. LUTTGE, B.G., P. PANCHAL, V. PURI, M. A. CHECKLEY, AND **E. O. FREED**. 2014. Mutations in the feline immunodeficiency virus envelope glycoprotein confer resistance to a dominant-negative fragment of Tsg101 by enhancing infectivity and cell-to-cell virus transmission. *Biochim. Biophys. Acta* 1838:1143-1152.

145. DANIELS, S. I., E. E. SOULE, K. S. DAVIDOFF, J. G. BERNBAUM, K. MAEDA, A. A, WAHEED, **E. O. FREED**, H. MITSUYA, S. S. STAHL, N. E. NAIMAN, P. WINGFIELD, R. YARCHOAN, AND D. D. DAVIS. 2014. Induction of virus uptake through activation of macropinocytosis with a novel polymerizing peptide. *FASEB J.* 28:106-116.

146. VAN ENGELENBURG, S. B., G. SHTENGEL, P. SENGUPTA, K. WAKI, M. JARNIK, S. D. ABLAN, **E. O. FREED**, H. F. HESS, AND J. LIPPINCOTT-SCHWARTZ. 2014. Distribution of mammalian ESCRT machinery at HIV assembly sites reveals virus scaffolding of ESCRT-III subunits. *Science* 343: 653-656.

147. **FREED, E. O.,** AND M. GALE, JR. 2014. Antiviral innate immunity: Editorial overview. *J. Mol. Biol.* 426:1129-1132.

148. CHEN, A. K., P. SENGUPTA, K. WAKI, S. B. VAN ENGELENBURG, T. OCHIYA, S. D. ABLAN, **E. O. FREED**, AND J. LIPPINCOTT-SCHWARTZ. 2014. MicroRNA binding to the HIV-1 Gag protein inhibits Gag assembly and virus production. *Proc. Natl. Acad. Sci. USA* 111:E2676-E2683.

149. TEDBURY, P., AND **E. O. FREED**. 2014. Role of matrix in HIV-1 envelope glycoprotein incorporation. *Trends Microbiol*. 22:372-378.

150. LI, M., S. D. ABLAN, C. MIAO, Y.-M. ZHENG, M. S. FULLER, P. D. RENNERT, W. MAURY, M. C. JOHNSON, **E. O. FREED**, AND S.-L. LIU. 2014. TIM-family proteins inhibit HIV-1 release. *Proc. Natl. Acad. Sci. USA* 111:E3699-E3707.

151. AFONIN, K. A., M. VIARD, A. Y. KOYFMAN, A. N. MARTINS, W. K. KASPRZAK, M. PANIGAJ, R. DESAI, A. SANTHANAM, W. W. GRABOW, L. JAEGER, E. HELDMAN, J. REISER, W. CHIU**, E. O. FREED,** AND B. A. SHAPIRO. 2014. Multifunctional RNA nanoparticles. *Nano Lett.* 14:5662-5671.

152. WAHEED, A. A., N. D. KURUPPU, K. L. FELTON, D. D'SOUZA, AND **E. O. FREED**. 2014. In COS cells Vpu can both stabilize tetherin expression and counteract its antiviral activity. *PLoS One* 9(10): e111628.

153. BIRD, S. W., K. KIRKEGAARD, M. AGBANDJE-MCKENNA, AND **E. O. FREED**. 2014. The ins and outs of viral infection: Keystone meeting review. *Viruses* 6:3652-3662.

154. PARK, S.-Y., A. WAHEED, Z. R. ZHANG, **E. O. FREED**, AND J. S. BONIFACINO. 2014. HIV-1 Vpuinduces caspase-mediated cleavage of IRF3. *J. Biol. Chem.* 289:35102-35110.

155. KUO, L., AND **E. O. FREED**. 2014. HIV-1 assembly cofactors. In: Encyclopedia of AIDS (T. J. Hope, M. Stevenson, and D. Richman, eds.). Springer, New York, DOI 10.1007/978-1-4614-9610-6_75-1, pp. 1-9.

156. TEDBURY, P. R., AND **E. O. FREED**. 2014. Virus assembly. In: Encyclopedia of AIDS (T. J. Hope, M. Stevenson, and D. Richman, eds.). Springer, New York, DOI 10.1007/978-1-4614-9610-6_55-1, pp. 1-11.

157. TEDBURY, P. R., AND **E. O. FREED**. 2015. The cytoplasmic tail of retroviral envelope glycoproteins. In: The Molecular Basis of Viral Infection, Progress in Molecular Biology and Translational Science, Volume 129 (P.J. Klasse, ed.). Elsevier, pp. 253-284.

158. **FREED, E. O**. 2015. Announcing the 2015 *Viruses* young investigator prize and graduate student/postdoctoral fellow travel awards. *Viruses* 7:707-708.

159. TEDBURY, P. R., AND **E. O. FREED**. 2015. HIV-1 Gag: An emerging target for antiretroviral therapy. *Curr. Top. Microbiol. Immunol.* 389:171-201.

160. **FREED, E. O.** 2015. HIV assembly, release and maturation. *Nat. Rev. Microbiol.* 13:484-496.

161. TEDBURY, P. R., P. Y. MERCREDI, C. R. GAINES, M. F. SUMMERS AND **E. O. FREED**. 2015. Elucidating the mechanism by which compensatory mutations rescue an HIV matrix mutant defective for Gag membrane targeting and envelope glycoprotein incorporation. *J. Mol. Biol.* 427:1413-1427.

162. BROWN, L. A., C. COX, J. BAPTISTE, H. SUMMERS, R. BUTTON, K. BAHLOW, V. SPURRIER, J. KYSER, B. G. LUTTGE, L. KUO, **E. O. FREED** *, AND M. F. SUMMERS*. 2015. NMR structure of the myristylated feline immunodeficiency virus matrix protein. *Viruses* 7:2210-2229. (*Joint corresponding author)

163. YU, J., M. LI, J. WILKINS, S. DING, T. H. SWARTZ, A. M. ESPOSITO, Y.-M. ZHENG, **E. O. FREED**, C. LIANG, B. K. CHEN, AND S.-L. LIU. 2015. IFITM proteins restrict HIV-1 infection by antagonizing the envelope glycoprotein. *Cell Rep.* 13:145-156.

164. GERBER, P. P., M. CABRINI, C. JANCIC, L. PAOLETTI, C. BANCHIO, C. VON BILDERLING, L. SIGAUT, L. I. PIETRASANTA, G. DUETTE, **E. O. FREED**, G. DE SAINT BASILE, C. F. MOITA, L. F. MOITA, S. AMIGORENA, P. BENAROCH, J. GEFFNER, AND M. OSTROWSKI. 2015. Rab27a controls HIV-1 assembly by regulating plasma membrane levels of phosphatidylinositol 4,5-bis-phosphate. *J. Cell Biol.* 209:435-452.

165. URANO, E., S. D. ABLAN, R. MANDT, G. T. PAULY, D. M. SIGANO, J. P. SCHNEIDER, D. E. MARTIN, T. J. NITZ, C. T. WILD, AND **E. O. FREED**. 2016. Alkyl amine bevirimat derivatives are potent and broadly active HIV-1 maturation inhibitors. *Antimicrob. Agents Chemother.* 60:190-197.

166. MARTINS, A. N., A. A. WAHEED, S. D. ABLAN, W. HUANG, A. NEWTON, C. J. PETROPOULOS, R. M. BRINDEIRO, AND **E. O. FREED**. 2016. Elucidation of the molecular mechanism driving duplication of the HIV-1 PTAP late domain. *J. Virol.* 90:768-779.

167. FONTANA, J., P. W. KELLER, E. URANO, S. D. ABLAN, A. C. STEVEN, AND **E. O. FREED**. 2016. Identification of an HIV-1 mutation in spacer peptide 1 that stabilizes the immature CA-SP1 lattice. *J. Virol.* 90:972-978.

168. TEDBURY, P. R., M. NOVIKOVA, S. D. ABLAN, AND **E. O. FREED**. 2016. Biochemical evidence of a role for matrix trimerization in HIV-1 envelope glycoprotein incorporation. *Proc. Natl. Acad. Sci. USA* 113:E182-E190.

169. AFONIN, K. A., M. VIARD, P. TEDBURY, E. BINDEWALD, L. PARLEA, M. HOWINGTON, M. VALDMAN, A. JOHNS-BOEHME, C. BRAINERD, **E. O. FREED**, AND B. A. SHAPIRO. 2016. The use of minimal RNA toeholds to trigger the activation of multiple functionalities. *Nano Lett.* 16:1746-1753.

170. MERCREDI, P.Y., N. BUCCA, B. LOELIGER, C. R. GAINES, M. MEHTA, P. BHARGAVA, P. R. TEDBURY, L. CHARLIER, N. FLOQUET, D. MURIAUX, C. FAVARD, C. R. SANDERS, **E. O. FREED** *, J. MARCHANT*, AND M. F. SUMMERS*. 2016. Structural and molecular determinants of membrane binding by the HIV-1 matrix protein. *J. Mol. Biol.* 428:1637-1655. (*Joint corresponding author)

171. WAHEED, A. A., S. MACDONALD, M. KHAN, M. MOUNTS, M. SWIDERSKI, Y. XU, Y. YE, AND **E. O. FREED**. 2016. The Vpu-interacting protein SGTA regulates expression of a non-glycosylated tetherin species. *Sci. Rep.* 6:24934.

172. ALFADHLI, A., A. MACK, C. RITCHIE, I. CYLINDER, L. HARPER, P. R. TEDBURY, **E. O. FREED**, AND E. BARKLIS. 2016. Trimer enhancement mutation effects on HIV-1 matrix protein binding activities. *J. Virol.* 90:5657-5664.

173. TIMILSINA, U., D. GHIMIRE, B. TIMALSINA, T. J. NITZ, C. T. WILD, **E. O. FREED**, AND R. GAUR. 2016. Identification of potent maturation inhibitors against HIV-1 clade C. *Sci. Rep.* 6:27403.

174. **FREED, E. O.** 2016. Getting IN on viral RNA condensation and virion maturation. *Cell* 166:1082-1083.

175. URANO, E., K. MIYAUCHI, Y. KOJIMA, M. HAMATAKE, S. D. ABLAN, S. FUDO, **E. O. FREED**, T. HOSHINO, AND J. KOMANO. 2016. A triazinone derivative inhibits HIV-1 replication by interfering with reverse transcriptase activity. *ChemMedChem* 11:2320-2326.

176. FERNANDEZ, M. V., AND **E. O. FREED**. 2017. 'Expand and click': A new method for labeling HIV-1 envelope glycoproteins. *Cell Chem. Biol.* 24:548-550.

177. MARTINS, A. N., W. KE, V. JAWAHAR, M. STRIPLIN, C. STRIPLIN, **E. O. FREED**, AND K. A. AFONIN. 2017. Intracellular reassociation of RNA-DNA hybrids that activates RNAi in HIV-infected cells. In: RNA Nanostructures: Methods and Protocols, Methods in Molecular Biology, Volume 1632 (E.Bindewald and B. A. Shapiro, eds.). Humana Press, New York, NY, pp. 269-283.

178. LIPPINCOTT-SCHWARTZ, J., **E. O. FREED**, AND S. B. VAN ENGELENBURG. 2017. A consensus view of ESCRT-mediated human immunodeficiency virus type 1 abscission. *Annu. Rev. Virol.* 4:309-325.

179. WANG, M., C. M. QUINN, J. R. PERILLA, H. ZHANG, R. SHIRRA, JR., G. HOU, I.-J. BYEON, C. L. SUITER, S. ABLAN, E. URANO, T. J. NITZ, C. AIKEN, **E. O. FREED**, P. ZHANG, K. SCHULTEN, A. M. GRONENBORN, AND T. POLENOVA. 2017. Quenching protein dynamics interferes with HIV capsid maturation. *Nat. Commun.* 8:1779.

180. WAHEED, A. A., A. GITZEN, M. SWIDERSKI, AND **E. O. FREED**. 2018. High-mannose but not complex-type glycosylation of tetherin is required for restriction of HIV-1 release. *Viruses* 10:26.

181. BUTTLER, C. A., N. PEZESHKIAN, M. V. FERNANDEZ, J. AARON, S. NORMAN, **E. O. FREED**, AND S. B. VAN ENGELENBURG. 2018. Single molecule fate of HIV-1 envelope glycoprotein complexes reveals late-stage viral lattice formation. *Nat. Commun.* 9:1861.

182. VAN DUYNE, R., AND **E. O. FREED**. 2018. HIV-1 packs in PACSIN2 for cell-cell spread. *Proc. Natl. Acad. Sci. USA* 115:6885-6887.

183. NOVIKOVA, M., L. J. ADAMS, J. FONTANA, A. T. GRES, M. BALASUBRAMANIAM, D. C. WINKLER, S. B. KUDCHODKAR, F. SOHEILIAN, S. G. SARAFIANOS, A. C. STEVEN, AND **E. O. FREED**. 2018. Identification of a structural element in HIV-1 Gag required for virus particle assembly and maturation. *mBio* 9:e01567-18.

184. FERNANDEZ, M. V., AND **E. O. FREED**. 2018. Meeting review: 2018 International Workshop on Structure and Function of the Lentiviral gp41 Cytoplasmic Tail. *Viruses* 10:613.

185. URANO, E., U. TIMILSINA, J. A. KAPLAN, S. ABLAN, D. GHIMIRE, P. PHAM, N. KURUPPU, R. MANDT, S. R. DURELL, T. J. NITZ, D. E. MARTIN, C. T. WILD, R. GAUR, AND **E. O. FREED**. 2019. Resistance to second-generation HIV-1 maturation inhibitors. *J. Virol.* 93:e02017-18.

186. LI, M., A. A. WAHEED, J. YU, C. ZENG, H.-Y. CHEN, Y.-M. ZHENG, A. FEIZPOUR, B. M. REINHARD, S. GUMMULURU, S. LIN, **E. O. FREED**, AND S.-L. LIU 2019. TIM-mediated inhibition of HIV-1 release is antagonized by Nef but potentiated by SERINC proteins. *Proc. Natl. Acad. Sci. USA* 116:5705-5714.

187. UHL, J., S. GUJARATHI, A. A. WAHEED, A. GORDON, **E. O. FREED**, AND K. GOUSSET. 2019. Myosin-X is essential to the intercellular spread of HIV-1 Nef through tunneling nanotubes. *J. Cell Commun. Signal.* 13:209-224.

188. VAN DUYNE, R., L. S. KUO, P. PHAM, K. FUJII, AND **E. O. FREED**. 2019. Mutations in the HIV-1 envelope glycoprotein can broadly rescue blocks at multiple steps in the virus replication cycle. *Proc. Natl. Acad. Sci. USA* 116:9040-9049.

189. ZHENG, Z. M., K. LAN, **E. O. FREED**, AND Z. L. SHI. 2019. Preface (special issue of *Virologica Sinica* commemorating the first joint SKLV-NIH Virology Symposium). *Virol. Sin.* 34:117-118.

190. NOVIKOVA, M., Y. ZHANG, **E. O. FREED**, AND K. PENG. 2019. Multiple roles of HIV-1 capsid during the virus replication cycle. *Virol. Sin.* 34:119-134.

191. O'DOHERTY, U., AND **E. O. FREED**. 2019. Heavy metal protease takes a tiki torch to HIV assembly. *Nat. Immunol.* 20:668-669.

192. MAILLER, E., A. A. WAHEED, S. Y. PARK, D. C. GERSHLICK, **E. O. FREED**, AND J. S. BONIFACINO. 2019. The autophagy protein ATG9A promotes HIV-1 infectivity. *Retrovirology* 16:18.

193. ALFADHLI, A., A. O. STAUBUS, P. R. TEDBURY, M. NOVIKOVA, **E. O. FREED**, AND E. BARKLIS. 2019. Analysis of HIV-1 matrix-envelope cytoplasmic tail interactions. *J. Virol.* 93:e01079-19.

194. HOFFMAN, H. K., M. V. FERNANDEZ, N. S. GROVES, **E. O. FREED**, AND S. B. VAN ENGELENBURG. 2019. Genomic tagging of endogenous human ESCRT-I complex preserves ESCRT-mediated membrane-remodeling functions. *J. Biol. Chem.* 294:16266-16281.

195. FERNANDEZ, M. V., K. A. DELVIKS-FRANKENBERRY, D. A. SCHEIBLIN, C. HAPPEL, V. K. PATHAK, AND **E. O. FREED**. 2019. Authentication analysis of MT-4 cells distributed by the National Institutes of Health AIDS Reagent Program. *J. Virol.* 93:e01390-19.

196. MALLERY, D. L., K. M. R. FAYSAL, A. KLEINPETER, M. S. C. WILSON, M. VAYSBURD, A. J. FLETCHER, M. NOVIKOVA, T. BÖCKING, **E. O. FREED**, A. SAIARDI, AND L. C. JAMES. 2019. Cellular IP_6 levels limit HIV production while viruses that cannot efficiently package IP_6 are attenuated for infection and replication. *Cell Rep.* 29:3983-3996.

197. TEDBURY, P. R., M. NOVIKOVA, A. ALFADHLI, Y. HIKICHI, I. KAGIAMPAKIS, V. N. KEWALRAMANI, E. BARKLIS, AND **E. O. FREED**. 2020. HIV-1 matrix trimerization-impaired mutants are rescued by matrix substitutions that enhance envelope glycoprotein incorporation. *J. Virol.* 94:e01526-19.

198. FU, Y., S. HE., A. A. WAHEED, D. DABBAGH, Z. ZHOU, B. TRINITE, Z. WANG, J. YU, D. WANG, F. LI, D. N. LEVY, H. SHANG*, **E. O. FREED***, AND Y. WU*. 2020. PSGL-1 restricts HIV-1 infectivity by blocking virus particle attachment to target cells. *Proc. Natl. Acad. Sci. USA* 117:9537-9545. (*Joint corresponding author)

199. KIRUI, J., AND **E. O. FREED**. 2020. Generation and validation of a highly sensitive bioluminescent HIV-1 reporter vector that simplifies measurement of virus release. *Retrovirology* 17:12.

200. WAHEED, A. A., M. SWIDERSKI, A. KHAN, A. GITZEN, A. MAJADLY, AND **E. O. FREED**. 2020. The viral protein U (Vpu)-interacting host protein ATP6V0C down-regulates cell-surface expression oftetherin and thereby contributes to HIV-1 release. *J. Biol. Chem.* 295:7327-7340.

201. BROWN, J. B., H. R. SUMMERS, L. A. BROWN, L. MARCHANT, P. N. CANOVA, C. T. O'HERN, S. T. ABBOTT, C. NYAUNU, S. MAXWELL, T. JOHNSON, M. B. MOSER, S. D. ABLAN, H. CARTER, **E. O. FREED***, AND M. F. SUMMERS*. 2020. Structural and mechanistic studies of the rare myristoylation signal of the feline immunodeficiency virus. *J. Mol. Biol.* 433:4076-4091. (*Joint corresponding author)

202. KLEINPETER, A. B., AND **E. O. FREED**. 2020. HIV-1 maturation: Lessons learned from inhibitors. *Viruses* 12:940.

203. FERNANDEZ, M. V., H. K. HOFFMAN, N. PEZESHKIAN, P. R. TEDBURY, S. B. VAN ENGELENBURG, AND **E. O. FREED**. 2020. Elucidating the basis for permissivity of the MT-4 T-cell line to replication of an HIV-1 mutant lacking the gp41 cytoplasmic tail. *J. Virol.* 94:e01334-20.

204. KLEINPETER, A. B., AND **E. O. FREED**. 2020. How to package the RNA of HIV-1. *eLife* 9: e63585.

205. HE, S., A. A. WAHEED, B. HETRICK, D. DABBAGH, I. V. AKHRYMUK, K. KEHN-HALL, **E. O. FREED***, AND Y. WU*. 2020. PSGL-1 inhibits the virion incorporation of SARS-CoV and SARS-CoV-2 spike glycoproteins and impairs virus attachment and infectivity. *Viruses* 13:E46. (*Joint correspondingauthor)

206. HIKICHI, Y., R. VAN DUYNE, P. PHAM, J. L. GROEBNER, A. WIEGAND, J. W. MELLORS, M. F. KEARNEY, AND **E. O. FREED**. 2020. Mechanistic analysis of the broad antiretroviral resistance conferred by HIV-1 envelope glycoprotein mutations. *mBio* 12:e03134-20.

207. MALLERY, D. L., A. B. KLEINPETER, N. RENNER, K. M. RIFAT FAYSAL, M. NOVIKOVA, L. KISS, M. S. C. WILSON, B. AHSAN, Z. KE, J. A. G. BRIGGS, A. SAIARDI, T. BÖCKING, **E. O. FREED***, AND L. C. JAMES*. 2021. A stable immature lattice packages IP_6 for HIV capsid maturation. *Sci. Adv.* 7: eabe4716. (*Joint corresponding author)

208. LUN, C. M., A. A. WAHEED, A. MAJADLY, N. POWELL, AND **E. O. FREED**. 2021. Mechanism of viral glycoprotein targeting by membrane-associated-RING-CH proteins. *mBio* 12:e00219-21.

209. MENDONÇA, L., D. SUN, J. NING, J. LIU, A. KOTECHA, M. OLEK, T. FROSIO, X. FU, B. A. HIMES, A. B. KLEINPETER, **E. O. FREED**, J. ZHOU, C. AIKEN, AND P. ZHANG. 2021. CryoET structures of immature HIV Gag reveal six-helix bundle. *Commun. Biol.* 4:481.

210. HIKICHI, Y., AND **E. O. FREED**. 2021. Maturation of HIV-1. *Science* 373:621-622.

211. PUTHENVEETIL, R., C. M. LUN, R. E. MURPHY, L. B. HEALY, G. VILMEN, E. T. CHRISTENSON, **E. O. FREED**, AND A. BANERJEE. 2021. S-acylation of SARS-CoV-2 spike protein: Mechanistic dissection, in vitro reconstitution and role in viral infectivity. *J. Biol. Chem.* 297:101112.

212. ZENG, C., A. A. WAHEED, T. LI, J. YU, Y.-M. ZHENG, J. S. YOUNT, H. WEN, **E. O. FREED**, AND S.-L.LIU. 2021. SERINC proteins potentiate antiviral type I IFN production and proinflammatory signaling pathways. *Sci. Signal.* 14:eabc7611.

213. VILMEN, G., A. BANERJEE, AND **E. O. FREED**. 2021. Rafting through the palms: S-acylation of SARS-CoV-2 spike protein induces lipid reorganization. *Dev. Cell* 56:2787-2789.

214. DUCHON, A., S. SANTOS, J. CHEN, M. BROWN, O. A. NIKOLAITCHIK, S. TAI, J. A. CHAO, **E. O. FREED**, V. K. PATHAK, AND W.-S. HU. 2021. Plasma membrane anchoring and Gag:Gag multimerization on viral RNA are critical properties of HIV-1 Gag required to mediate efficient genome packaging. *mBio* Dec 7:e0325421.

215. OTT, M., AND **E. O. FREED**. 2021. Human immunodeficiency viruses: Replication. In: Fields Virology, 7th edition, Volume 3: RNA Viruses (D. M. Knipe and P. M. Howley, eds.). Lippincott, Williams, and Wilkins, Philadelphia, in press.