

## **Curriculum Vitae**

Stuart Weston, Ph.D.  
Research Associate, Department of Microbiology & Immunology  
University of Maryland, School of Medicine

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### **Contact Information**

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### **Education**

2009 - 2012 B.Sc. Hons, Biomedical Sciences, University College London (1<sup>st</sup> Class Degree, Dean's List for Academic Excellence)  
2012 - 2016 Ph.D., Molecular Cell Biology, MRC Laboratory for Molecular Cell Biology, University College London, Thesis Advisor – Professor Marsh Marsh  
“Towards defining the cellular and molecular function of the broad-spectrum antiviral IFITM proteins”

### **Post Graduate Education and Training**

2016 - 2021 Post-Doctoral Research Fellow, University of Maryland, School of Medicine, Mentor – Matthew Frieman, Ph.D.

### **Professional Society Membership**

2017-present Associate Member, American Society for Virology  
2020-present Full Member, Microbiology Society

### **Honors And Awards**

2019 American Society for Virology Annual Conference Travel Award  
2017 American Society for Virology Annual Conference Travel Award  
2016 University-wide finalist for '3 Minute Thesis' competition

- 2015 Winner Early Career Research presentation prize at University College London, Infection, Immunology and Inflammation Symposium  
2012 Medical Research Council 4-year funded Ph.D. studentship

### **Teaching Service**

#### **Undergraduate Student Teaching**

- 2017 Lab mentor, Summer Research Training Program  
2 high school students, daily contact for the summer

#### **Undergraduate Student Teaching**

- 2017 Lab mentor, Summer Research – Nathan Schnapper Intern Program  
1 undergraduate student, daily contact for the summer  
2018 Lab mentor, Summer Research – Nathan Schnapper Intern Program  
1 undergraduate student, daily contact for the summer  
2018 Lab mentor, Summer Research Training Program  
1 undergraduate student, daily contact for the summer

#### **Medical Student Teaching**

- 2018 Lab Mentor for MD/Ph.D. Rotation Student  
1 student, daily contact for the summer  
2018-2020 Small Group Discussion Leader, Host Defense and Infectious Diseases  
16-20, 2<sup>nd</sup> year medical students – 2 contacts hours/year

#### **Patents, Inventions and Copyrights**

- “Broad Spectrum Antiviral Compounds Targeting The Ski Complex” (“Invention”). US Provisional Patent Application Number 63/121,120. UMB Docket Number: MF-2021-006 (PR)

### **Publications**

#### **Peer-reviewed journal articles**

1. Anderson I, Low JS, **Weston S**, Weinberger M, Zhyvoloup A, Labokha AA, Corazza G, Kitson RA, Moody CJ, Marcello A, Fassati A. Heat shock protein 90 controls HIV-1 reactivation from latency. Proc Natl Acad Sci U S A. 2014 Apr 15;111(15):E1528-37
2. Smith S, **Weston S**, Kellam P, Marsh M. IFITM proteins-cellular inhibitors of viral entry. Curr Opin Virol. 2014 Feb;4:71-7.

3. **Weston S**, Czieso S, White IJ, Smith SE, Kellam P, Marsh M. A membrane topology model for human interferon inducible transmembrane protein 1. *PLoS One*. 2014 Aug 8;9(8):e104341.
4. **Weston S**, Czieso S, White IJ, Smith SE, Wash RS, Diaz-Soria C, Kellam P, Marsh M. Alphavirus Restriction by IFITM Proteins. *Traffic*. 2016 Sep;17(9):997-1013.
5. Smith SE, Busse DC, Binter S, **Weston S**, Diaz Soria C, Laksono BM, Clare S, Van Nieuwkoop S, Van den Hoogen BG, Clement M, Marsden M, Humphreys IR, Marsh M, de Swart RL, Wash RS, Tregoning JS, Kellam P. Interferon-Induced Transmembrane Protein 1 Restricts Replication of Viruses That Enter Cells via the Plasma Membrane. *J Virol*. 2019 Mar 5;93(6):e02003-18.
6. **Weston S**, Matthews KL, Lent R, Vlk A, Haupt R, Kingsbury T, Frieman MB. A Yeast Suppressor Screen Used To Identify Mammalian SIRT1 as a Proviral Factor for Middle East Respiratory Syndrome Coronavirus Replication. *J Virol*. 2019 Jul 30;93(16):e00197-19.
7. Benfield CT, MacKenzie F, Ritzefeld M, Mazzon M, **Weston S**, Tate EW, Teo BH, Smith SE, Kellam P, Holmes EC, Marsh M. Bat IFITM3 restriction depends on S-palmitoylation and a polymorphic site within the CD225 domain. *Life Sci Alliance*. 2020 Apr 29;3(6):e202000747. Erratum for: *Life Sci Alliance*. 2019 Dec 11;3(1).
8. **Weston S**, Frieman MB. COVID-19: Knowns, Unknowns, and Questions. *mSphere*. 2020 Mar 18;5(2):e00203-20.
9. Hansen J, Baum A, Pascal KE, Russo V, Giordano S, Wloga E, Fulton BO, Yan Y, Koon K, Patel K, Chung KM, Hermann A, Ullman E, Cruz J, Rafique A, Huang T, Fairhurst J, Libertiny C, Malbec M, Lee WY, Welsh R, Farr G, Pennington S, Deshpande D, Cheng J, Watty A, Bouffard P, Babb R, Levenkova N, Chen C, Zhang B, Romero Hernandez A, Saotome K, Zhou Y, Franklin M, Sivapalasingam S, Lye DC, **Weston S**, Logue J, Haupt R, Frieman M, Chen G, Olson W, Murphy AJ, Stahl N, Yancopoulos GD, Kyrtatsous CA. Studies in humanized mice and convalescent humans yield a SARS-CoV-2 antibody cocktail. *Science*. 2020 Aug 21;369(6506):1010-1014.
10. **Weston S**, Coleman CM, Haupt R, Logue J, Matthews K, Li Y, Reyes HM, Weiss SR, Frieman MB. Broad Anti-coronavirus Activity of Food and Drug Administration-Approved Drugs against SARS-CoV-2 In Vitro and SARS-CoV In Vivo. *J Virol*. 2020 Oct 14;94(21):e01218-20.
11. Keech C, Albert G, Cho I, Robertson A, Reed P, Neal S, Plested JS, Zhu M, Cloney-Clark S, Zhou H, Smith G, Patel N, Frieman MB, Haupt RE, Logue J, McGrath M, **Weston S**, Piedra PA, Desai C, Callahan K, Lewis M, Price-Abbott P, Formica N, Shinde V, Fries L, Lickliter JD, Griffin P, Wilkinson B, Glenn GM. Phase 1-2 Trial of a SARS-CoV-2 Recombinant Spike Protein Nanoparticle Vaccine. *N Engl J Med*. 2020 Dec 10;383(24):2320-2332.
12. Miller K, McGrath ME, Hu Z, Ariannejad S, **Weston S**, Frieman M, Jackson WT. Coronavirus interactions with the cellular autophagy machinery. *Autophagy*. 2020 Dec;16(12):2131-2139.
13. Gordon DE, Hiatt J, Bouhaddou M, Rezelj VV, Ulferts S, Braberg H, Jureka AS, Obernier K, Guo JZ, Batra J, Kaake RM, Weckstein AR, Owens TW, Gupta M, Pourmal S, Titus EW, Cakir M, Soucheray M, McGregor M, Cakir Z, Jang G, O'Meara MJ, Tummino TA, Zhang Z, Foussard H, Rojc A, Zhou Y, Kuchenov D, Hüttenhain R, Xu J, Eckhardt M, Swaney DL, Fabius JM, Ummadi M, Tutuncuoglu B, Rathore U, Modak M, Haas P, Haas KM, Naing ZZC, Pulido EH, Shi Y, Barrio-Hernandez I, Memon D, Petsalaki E, Dunham A, Marrero MC, Burke D, Koh C, Vallet T, Silvas JA, Azumaya CM, Billesbølle C, Brilot AF, Campbell

- MG, Diallo A, Dickinson MS, Diwanji D, Herrera N, Hoppe N, Kratochvil HT, Liu Y, Merz GE, Moritz M, Nguyen HC, Nowotny C, Puchades C, Rizo AN, Schulze-Gahmen U, Smith AM, Sun M, Young ID, Zhao J, Asarnow D, Biel J, Bowen A, Braxton JR, Chen J, Chio CM, Chio US, Deshpande I, Doan L, Faust B, Flores S, Jin M, Kim K, Lam VL, Li F, Li J, Li YL, Li Y, Liu X, Lo M, Lopez KE, Melo AA, Moss FR 3rd, Nguyen P, Paulino J, Pawar KI, Peters JK, Pospiech TH Jr, Safari M, Sangwan S, Schaefer K, Thomas PV, Thwin AC, Trenker R, Tse E, Tsui TKM, Wang F, Whitis N, Yu Z, Zhang K, Zhang Y, Zhou F, Saltzberg D; QCRG Structural Biology Consortium, Hodder AJ, Shun-Shion AS, Williams DM, White KM, Rosales R, Kehrer T, Miorin L, Moreno E, Patel AH, Rihn S, Khalid MM, Vallejo-Gracia A, Fozouni P, Simoneau CR, Roth TL, Wu D, Karim MA, Ghousaini M, Dunham I, Berardi F, Weigang S, Chazal M, Park J, Logue J, McGrath M, **Weston S**, Haupt R, Hastie CJ, Elliott M, Brown F, Burness KA, Reid E, Dorward M, Johnson C, Wilkinson SG, Geyer A, Giesel DM, Baillie C, Raggett S, Leech H, Toth R, Goodman N, Keough KC, Lind AL; Zoonomia Consortium, Klesh RJ, Hemphill KR, Carlson-Stevermer J, Oki J, Holden K, Maures T, Pollard KS, Sali A, Agard DA, Cheng Y, Fraser JS, Frost A, Jura N, Kortemme T, Manglik A, Southworth DR, Stroud RM, Alessi DR, Davies P, Frieman MB, Ideker T, Abate C, Jouvenet N, Kochs G, Shoichet B, Ott M, Palmarini M, Shokat KM, García-Sastre A, Rassen JA, Grosse R, Rosenberg OS, Verba KA, Basler CF, Vignuzzi M, Peden AA, Beltrao P, Krogan NJ. Comparative host-coronavirus protein interaction networks reveal pan-viral disease mechanisms. *Science*. 2020 Dec 4;370(6521):eabe9403.
14. **Weston S**, Baracco L, Keller C, Matthews K, McGrath ME, Logue J, Liang J, Dyll J, Holbrook MR, Hensley LE, Jahrling PB, Yu W, MacKerell AD Jr, Frieman MB. The SKI complex is a broad-spectrum, host-directed antiviral drug target for coronaviruses, influenza, and filoviruses. *Proc Natl Acad Sci U S A*. 2020 Dec 1;117(48):30687-30698.
  15. Tian JH, Patel N, Haupt R, Zhou H, **Weston S**, Hammond H, Logue J, Portnoff AD, Norton J, Guebre-Xabier M, Zhou B, Jacobson K, Maciejewski S, Khatoon R, Wisniewska M, Moffitt W, Kluepfel-Stahl S, Ekechukwu B, Papin J, Boddapati S, Jason Wong C, Piedra PA, Frieman MB, Massare MJ, Fries L, Bengtsson KL, Stertman L, Ellingsworth L, Glenn G, Smith G. SARS-CoV-2 spike glycoprotein vaccine candidate NVX-CoV2373 immunogenicity in baboons and protection in mice. *Nat. Commun*. 2021 Jan 14;12(1):372.
  16. Puhl AC, Fritch EJ, Lane TR, Tse LV, Yount BL, Sacramento CQ, Fintelman-Rodrigues N, Tavella TA, Maranhão Costa FT, **Weston S**, Logue J, Frieman M, Premkumar L, Pearce KH, Hurst BL, Andrade CH, Levi JA, Johnson NJ, Kisthardt SC, Scholle F, Souza TML, Moorman NJ, Baric RS, Madrid PB, Ekins S. Repurposing the Ebola and Marburg Virus Inhibitors Tilorone, Quinacrine, and Pyronaridine: In Vitro Activity against SARS-CoV-2 and Potential Mechanisms. *ACS Omega*. 2021 Mar 10;6(11):7454-7468.
  17. Martin-Sancho L, Lewinski MK, Pache L, Stoneham CA, Yin X, Becker ME, Pratt D, Churas C, Rosenthal SB, Liu S, **Weston S**, De Jesus PD, O'Neill AM, Gounder AP, Nguyen C, Pu Y, Curry HM, Oom AL, Miorin L, Rodriguez-Frandsen A, Zheng F, Wu C, Xiong Y, Urbanowski M, Shaw ML, Chang MW, Benner C, Hope TJ, Frieman MB, García-Sastre A, Ideker T, Hultquist JF, Guatelli J, Chanda SK. Functional landscape of SARS-CoV-2 cellular restriction. *Mol Cell*. 2021 Jun 17;81(12):2656-2668.e8
  18. Si L, Bai H, Rodas M, Cao W, Oh CY, Jiang A, Moller R, Hoagland D, Oishi K, Horiuchi S, Uhl S, Blanco-Melo D, Albrecht RA, Liu WC, Jordan T, Nilsson-Payant BE, Golyner I, Frere J, Logue J, Haupt R, McGrath M, **Weston S**, Zhang T, Plebani R, Soong M, Nurani A, Kim SM, Zhu DY, Benam KH, Goyal G, Gilpin SE, Prantil-Baun R, Gygi SP, Powers RK,

Carlson KE, Frieman M, tenOever BR, Ingber DE. A human-airway-on-a-chip for the rapid identification of candidate antiviral therapeutics and prophylactics. *Nat Biomed Eng.* 2021. Epub ahead of print.

### **Submitted or In-Revision Peer-reviewed journal articles**

1. Boras B, Anson B, Arenson D, Aschenbrenner L, Bakowski M, Beutler N, Binder J, Chen E, Eng H, Hammond H, Hammond J, Haupt R, Hoffman R, Kadar E, Kania R, Kimoto E, Kirkpatrick M, Lanyon L, Lendy E, Lillis J, Logue J, Luthra S, Ma C, Mason S, McGrath M, Noell S, Obach R, O'Brien M, O'Connor R, Ogilvie K, Owen D, Pettersson M, Reese M, Rogers T, Rosales R, Rossulek M, Sathish J, Shirai N, Steppan C, Ticehurst M, Updyke L, **Weston S**, Zhu Y, White K, Garcia-Sastre A, Wang J, Chatterjee A, Mesecar A, Frieman M, Anderson A, Allerton C. Discovery of a Novel Inhibitor of Coronavirus 3CL Protease for the Potential Treatment of COVID-19. *Nat. Commun.* 2021. Re-submitted after revision.
2. Schultz DC, Johnson RM, Ayyanathan K, Miller J, Whig K, Kamalia B, Dittmar M, Weston S, Hammond HL, Dillen C, Castellana L, Lee JS, Li M, Lee E, Constant S, Ferrer M, Thaiss CA, Frieman MB, Cherry S. Pyrimidine biosynthesis inhibitors synergize with nucleoside analogs to block SARS-CoV-2 infection. *Science.* 2021. Submitted.

### **Book Chapters**

1. **Weston S** and Frieman M. Respiratory Viruses. *Encyclopedia of Microbiology*, 4th Edition. 2019.
2. **Weston S** and Frieman M. Using Yeast to Identify Coronavirus-Host Protein Interactions. *Methods Mol Biol.* 2020;2203:205-221.

### **Proffered Communications**

#### **National**

1. **Weston S**, Czieso S, White IJ, Smith SE, Wash RS, Diaz-Soria C, Kellam P, Marsh M. Alphavirus Restriction by IFITM Proteins. American Society For Virology Annual Meeting, Blacksburg, VA, Oral Presentation, 2016.
2. **Weston S**, Matthews K, Frieman M. Utilizing yeast as a platform to identify therapeutics and genetic interactors for SARS and MERS-CoV. International Nidovirus Symposium, Kansas City, MI, Oral Presentation, 2017
3. **Weston S**, Matthews K, Frieman M. Utilizing *S. cerevisiae* as a platform to identify novel therapeutics and genetic interactors for SARS-CoV, MERS-CoV and Zika virus. American Society For Virology Annual Meeting, Madison, WI, Oral Presentation, 2017
4. **Weston S**, Matthews K, Frieman M. Utilizing yeast to identify genetic interactors of viral proteins and antiviral therapeutics. American Society For Virology Annual Meeting, College Park, MD, Oral Presentation, 2018
5. **Weston S**, Frieman M Utilizing yeast to identify genetic interactors of viral proteins and antiviral therapeutics. American Society For Virology Annual Meeting, Minneapolis, MN, Oral Presentation, 2019.

## **International**

1. **Weston S** and Marsh M. Defining the membrane topology of the antiviral IFITM proteins. Early Events in Virus Infection, Ascona, Switzerland, Poster Presentation 2014.
2. **Weston S** and Marsh M. Defining the membrane topology of the antiviral IFITM proteins. The EMBO Meeting, Birmingham, UK, Poster Presentation, 2015.
3. **Weston S** and Marsh M. Defining the mechanisms of action of interferon inducible transmembrane (IFITM) protein antiviral activity The Multidisciplinary Era of Endocytic Mechanics and Functions EMBO, Nice, France. Poster Presentation, 2015.
4. **Weston S** and Marsh M. Defining the mechanisms of action of interferon inducible transmembrane (IFITM) protein antiviral activity. University College London, Infection, Immunology and Inflammation Symposium, London, UK, 2015.
5. **Weston S**, Matthews K, Frieman M. Utilizing yeast to identify genetic interactors of viral proteins and antiviral therapeutics. Emerging Infectious Disease in the Pacific Rim, Shenzhen, China, Oral Presentation, 2018.
6. **Weston S** and Frieman M. Utilizing yeast to identify genetic interactors of viral proteins and antiviral therapeutics. Positive-Strand RNA Viruses Keystone Symposia. Killarney, Ireland, 2019.

## **Virtual**

1. **Weston S**, Baracco L, Shapiro P, MacKerell A, Frieman M. The SKI complex is a broad-spectrum host-directed antiviral drug target. Microbiology Society Annual Meeting, Oral Presentation, 2021.
2. **Weston S**, Baracco L, Shapiro P, MacKerell A, Frieman M. The SKI complex is a broad-spectrum host-directed antiviral drug target. World Microbe Forum, Poster Presentation, 2021.
3. **Weston S**, Baracco L, Shapiro P, MacKerell A, Frieman M. The SKI complex is a broad-spectrum host-directed antiviral drug target. International Nidovirus Symposium, Poster Presentation, 2021.
4. **Weston S**, Baracco L, Shapiro P, MacKerell A, Frieman M. The SKI complex is a broad-spectrum host-directed antiviral drug target. American Society for Virology Annual Meeting, Oral Presentation, 2021.