

## **CAMB 708 Syllabus - Spring 2020**

Instructors: Katie Bar, MD and Ron Collman, MD This will be one semester half-credit class, held every other week, that is research paper-based utilizing the current literature in HIV virology, pathogenesis and cure research. The class will have a journal club format with attendance and participation open to the full Penn student & postdoc community (teach-your-peers). Presentations will consist of background literature summary with key prior work in the field, and a data-based presentation and analysis of the paper under review. Enrolled students will responsible approximately 4 presentations over the duration of the half-year course, will participate in discussion of each paper presented by others, and will manage the coordination of presentations by other participants as well as bi-weekly paper selection in conjunction with the instructors.

### **Enrolled Student Responsibilities**

1. Present a paper approximately once every 2 months (exact schedule will depend on number of enrolled students).
2. For the classes when another student is presenting the paper, participate via presentation and discussion of at least one figure per paper - and being ready to present/discuss additional figures if needed, if too few other students are able to discuss the figure.
3. Work with the other enrolled students to:
  - a. ensure that every session is covered on the schedule by an enrolled or other participating student
  - b. manage the list of possible papers that the instructors will provide, or for papers that you or other students identify, ensure the papers selected are appropriate and broadly distributed among topics via discussion with instructors
  - c. ensure that papers are selected and distributed to the email list at least one week in advance
  - d. one of the enrolled students should meet with any non-enrolled student scheduled to present to review the structure of the presentations (eg, background, introduction, figures, conclusions, critique, etc.)
  - e. ensure that every student signs in to the sign-in sheet, and provide our admin support staff (Amy Onorato) with info on each class (paper; presenter; attendees)

**Syllabus:** Papers are selected as the course progresses. What follows is a listing of prior semesters' class schedule to serve as examples:

<b>Date</b>	<b>Topic / Paper</b>	<b># Students</b>	<b>Presenter</b>
2/2/17	<b>Coexistence of potent HIV-1 broadly neutralizing antibodies and antibody-sensitive viruses in a viremic controller.</b> Freund NT, Wang H, Scharf L, Nogueira L, Horwitz JA, Bar-On Y, Golijanin J, Sievers SA, Sok D, Cai H, Cesar Lorenzi JC, Halper-Stromberg A, Toth I, Piechocka-Trocha A, Gristick HB, van Gils MJ, Sanders RW, Wang LX, Seaman MS, Burton DR, Gazumyan A, Walker BD, West AP Jr, Bjorkman PJ, Nussenzweig MC. <i>Sci Transl Med.</i> 2017 Jan 18;9(373). pii: eaal2144. doi: 10.1126/scitranslmed.aal2144. PMID: 28100831	17	Ryan Roark
2/16/17	<b>A single injection of anti-HIV-1 antibodies protects against repeated SHIV challenges.</b> Gautam R, Nishimura Y, Pegu A, Nason MC, Klein F, Gazumyan A, Golijanin J, Buckler-White A, Sadjadpour R, Wang K, Mankoff Z, Schmidt SD, Lifson JD, Mascola JR, Nussenzweig MC, Martin MA. <i>Nature.</i> 2016 May 5;533(7601):105-9. doi: 10.1038/nature17677. Epub 2016 Apr 27. PubMed PMID: 27120156; PubMed Central PMCID: PMC5127204.	8	Anya Bauer
3/2/17	<b>Holes in the Glycan Shield of the Native HIV Envelope Are a Target of Trimer-Elicited Neutralizing Antibodies.</b> McCoy LE, van Gils MJ, Ozorowski G, Messmer T, Briney B, Voss JE, Kulp DW, Macauley MS, Sok D, Pauthner M, Menis S, Cottrell CA, Torres JL, Hsueh J, Schief WR, Wilson IA, Ward AB, Sanders RW, Burton DR. <i>Cell</i>	13	Ryan Roark

	Rep. 2016 Aug 30;16(9):2327-38. doi: 10.1016/j.celrep.2016.07.074. Epub 2016 Aug 18. PubMed PMID: 27545891; PubMed Central PMCID: PMC5007210.		
3/16/17	<b>Nonprogressing HIV-infected children share fundamental immunological features of nonpathogenic SIV infection.</b> Muenchhoff M, Adland E, Karimanzira O, Crowther C, Pace M, Csala A, Leitman E, Moonsamy A, McGregor C, Hurst J, Groll A, Mori M, Sinmyee S, Thobakgale C, Tudor-Williams G, Prendergast AJ, Klooverpris H, Roider J, Leslie A, Shingadia D, Brits T, Daniels S, Frater J, Willberg CB, Walker BD, Ndung'u T, Jooste P, Moore PL, Morris L, Goulder P. <i>Sci Transl Med.</i> 2016 Sep 8;8(358):358ra125. doi: 10.1126/scitransmed.aag1048. PubMed PMID: 27683550.	14	Katie Wetzel
3/30/17	<b>Social status alters immune regulation and response to infection in macaques.</b> Snyder-Mackler N, Sanz J, Kohn JN, Brinkworth JF, Morrow S, Shaver AO, Grenier JC, Pique-Regi R, Johnson ZP, Wilson ME, Barreiro LB, Tung J. <i>Science.</i> 2016 Nov 25;354(6315):1041-1045. PubMed PMID: 27885030.	13	Brenda Salantes
4/13/17	<b>Autophagy facilitates macrophage depots of sustained-release nanoformulated antiretroviral drugs.</b> Gnanadhas DP, Dash PK, Sillman B, Bade AN, Lin Z, Palandri DL, Gautam N, Alnouti Y, Gelbard HA, McMillan J, Mosley RL, Edagwa B, Gendelman HE, Gorantla S. <i>J Clin Invest.</i> 2017 Mar 1;127(3):857-873. doi: 10.1172/JCI90025. Epub 2017 Jan 30. PubMed PMID: 28134625	15	Krystal Colon Rivera
4/27/17	<b>CD32a is a marker of a CD4 T-cell HIV reservoir harbouring replication-competent proviruses.</b> Descours B, Petitjean G, López-Zaragoza JL, Bruel T, Raffel R, Psomas C, Reynes J, Lacabaratz C, Levy Y, Schwartz O, Lelievre JD, Benkirane M. <i>Nature.</i> 2017 Mar 23;543(7646):564-567. doi: 10.1038/nature21710. Epub 2017 Mar 15. PubMed PMID: 28297712	11	Anya Bauer
5/27/17	<b>Virion incorporation of integrin <math>\alpha 4\beta 7</math> facilitates HIV-1 infection and intestinal homing</b> Christina Guzzo <sup>1,*</sup> , David Ichikawa <sup>1,*</sup> , Chung Park <sup>2</sup> , Damilola Phillips <sup>1</sup> , Qingbo Liu <sup>1</sup> , Peng Zhang <sup>1</sup> , Alice Kwon <sup>1</sup> , Huiyi Miao <sup>1</sup> , Jacky Lu <sup>1</sup> , Catherine Rehm <sup>3</sup> , James Arthos <sup>4</sup> , Claudia Cicala <sup>4</sup> , Myron S. Cohen <sup>5</sup> , Anthony S. Fauci <sup>4</sup> , John H. Kehrl <sup>2</sup> and Paolo Lusso <sup>1,†</sup> <i>Science Immunology</i> 12 May 2017: Vol. 2, Issue 11, eaam7341 DOI: 10.1126/sciimmunol.aam7341	11	Ryan Roark
6/8/17	<b>A supramolecular assembly mediates lentiviral DNA integration.</b> Ballandras-Colas A, Maskell DP, Serrao E, Locke J, Swuoc P, Jónsson SR, Kotecha A, Cook NJ, Pye VE, Taylor IA, Andrésdóttir V, Engelman AN, Costa A, Cherepanov P. <i>Science.</i> 2017 Jan 6;355(6320):93-95. doi: 10.1126/science.aah7002. PubMed PMID: 28059770	10	Grant Eiler
6/22/17	<b>Targeting type I interferon-mediated activation restores immune function in chronic HIV infection.</b> Zhen A, Rezek V, Youn C, Lam B, Chang N, Rick J, Carrillo M, Martin H, Kasparian S, Syed P, Rice N, Brooks DG, Kitchen SG. <i>J Clin Invest.</i> 2017 Jan 3;127(1):260-268. doi: 10.1172/JCI89488. Epub 2016 Dec 12. PubMed PMID: 27941243; PubMed Central PMCID: PMC5199686.	13	Natania Field
7/6/17	<b>CD4+ T-cell-independent mechanisms suppress reactivation of latent tuberculosis in a macaque model of HIV coinfection.</b> Foreman TW, Mehra S, LoBato DN, Malek A, Alvarez X, Golden NA, Bucşan AN, Didier PJ, Doyle-Meyers LA, Russell-Lodrigue KE, Roy CJ, Blanchard J, Kuroda MJ, Lackner AA, Chan J, Khader SA, Jacobs WR Jr, Kaushal D. <i>Proc Natl Acad Sci U S A.</i> 2016 Sep 20;113(38):E5636-44. doi: 10.1073/pnas.1611987113. Epub 2016 Sep 6. PubMed PMID: 27601645; PubMed Central PMCID: PMC5035858.	7	Yanhui Cai
7/20/17	<b>Vpx overcomes a SAMHD1-independent block to HIV reverse transcription that is specific to resting CD4 T cells.</b> Baldauf HM, Stegmann L, Schwarz SM, Ambiel I, Trotard M, Martin M, Burggraf M, Lenzi GM, Lejk H, Pan X, Fregoso OI, Lim ES, Abraham L, Nguyen LA, Rutsch F, König R, Kim B, Emerman M, Fackler OT, Keppler OT. <i>Proc Natl Acad Sci U S A.</i> 2017 Mar 7;114(10):2729-2734. doi: 10.1073/pnas.1613635114. Epub 2017 Feb 22. PubMed PMID: 28228523; PubMed Central PMCID: PMC5347584.	13	Michael Hogan
8/3/17	<b>Astrocytes Resist HIV-1 Fusion but Engulf Infected Macrophage Material.</b> Russell RA, Chojnacki J, Jones DM, Johnson E, Do T, Eggeling C, Padilla-Parra S, Sattentau QJ. <i>Cell Rep.</i> 2017 Feb 7;18(6):1473-1483. doi: 10.1016/j.celrep.2017.01.027. PubMed PMID: 28178524; PubMed Central PMCID: PMC5316642.	11	Analise Gruenewald
8/17/17	<b>Vaginal bacteria modify HIV tenofovir microbicide efficacy in African women.</b> Klatt NR, Cheu R, Birse K, Zevin AS, Perner M, Noël-Romas L, Grobler A, Westmacott G,	12	Brenda Salantes

	Xie IY, Butler J, Mansoor L, McKinnon LR, Passmore JS, Abdool Karim Q, Abdool Karim SS, Burgener AD. <i>Science</i> . 2017 Jun 2;356(6341):938-945. doi: 10.1126/science.aai9383. PubMed PMID: 28572388.		
8/31/17	<b>Receptor usage dictates HIV-1 restriction by human TRIM5<math>\alpha</math> in dendritic cell subsets.</b> Ribeiro CM, Sarrami-Forooshani R, Setiawan LC, Zijlstra-Willems EM, van Hamme JL, Tigchelaar W, van der Wel NN, Kootstra NA, Gringhuis SI, Geijtenbeek TB. <i>Nature</i> . 2016 Dec 15;540(7633):448-452. doi: 10.1038/nature20567. Epub 2016 Dec 7. PubMed PMID: 27919079.	16	Mary Addison
9/14/17	<b>Functional Segregation of Overlapping Genes in HIV.</b> Fernandes JD, Faust TB, Strauli NB, Smith C, Crosby DC, Nakamura RL, Hernandez RD, Frankel AD. <i>Cell</i> . 2016 Dec 15;167(7):1762-1773.e12. doi: 10.1016/j.cell.2016.11.031. PubMed PMID: 27984726; PubMed Central PMCID: PMC5287106.	10	Grant Eilers
9/28/17	<b>Non-neutralizing Antibodies Alter the Course of HIV-1 Infection In Vivo.</b> Horwitz JA, Bar-On Y, Lu CL, Fera D, Lockhart AAK, Lorenzi JCC, Nogueira L, Golijanin J, Scheid JF, Seaman MS, Gazumyan A, Zolla-Pazner S, Nussenzweig MC. <i>Cell</i> . 2017 Aug 10;170(4):637-648.e10. doi: 10.1016/j.cell.2017.06.048. Epub 2017 Jul 27. PubMed PMID: 28757252; PubMed Central PMCID: PMC5554461.	10	Ryan Roark
10/12/17	<b>Rapid elicitation of broadly neutralizing antibodies to HIV by immunization in cows.</b> Sok D, Le KM, Vadnais M, Saye-Francisco KL, Jardine JG, Torres JL, Berndsen ZT, Kong L, Stanfield R, Ruiz J, Ramos A, Liang CH, Chen PL, Criscitiello MF, Mwangi W, Wilson IA, Ward AB, Smider VV, Burton DR. <i>Nature</i> . 2017 Aug 3;548(7665):108-111. doi: 10.1038/nature23301. Epub 2017 Jul 20. PubMed PMID: 28726771.	13	Ziyang Xu
10/26/2017	<b>Defining total-body AIDS-virus burden with implications for curative strategies.</b> Estes JD, Kityo C, Ssali F, Swainson L, Makamdop KN, Del Prete GQ, Deeks SG, Luciw PA, Chipman JG, Beilman GJ, Hoskuldsson T, Khoruts A, Anderson J, Deleage C, Jasurda J, Schmidt TE, Hafertepe M, Callisto SP, Pearson H, Reimann T, Schuster J, Schoepfoerster J, Southern P, Perkey K, Shang L, Wietgreffe SW, Fletcher CV, Lifson JD, Douek DC, McCune JM, Haase AT, Schacker TW. <i>Nat Med</i> . 2017 Nov;23(11):1271-1276. doi: 10.1038/nm.4411. Epub 2017 Oct 2. PMID:28967921	14	Anya Bauer
11/9/2017	<b>Host MicroRNAs-221 and -222 Inhibit HIV-1 Entry in Macrophages by Targeting the CD4 Viral Receptor.</b> Lodge R, Ferreira Barbosa JA, Lombard-Vadnais F, Gilmore JC, Deshiere A, Gosselin A, Wiche Salinas TR, Bego MG, Power C, Routy JP, Ancuta P, Tremblay MJ, Cohen ÉA. <i>Cell Rep</i> . 2017 Oct 3;21(1):141-153. doi: 10.1016/j.celrep.2017.09.030. PMID:28978468.	13	Mary Margaret Addison
12/7/2017	<b>Single-cell analysis of HIV-1 transcriptional activity reveals expression of proviruses in expanded clones during ART.</b> Wiegand A, Spindler J, Hong FF, Shao W, Cyktor JC, Cillo AR, Halvas EK, Coffin JM, Mellors JW, Kearney MF. <i>Proc Natl Acad Sci U S A</i> . 2017 May 2;114(18):E3659-E3668. doi: 10.1073/pnas.1617961114. Epub 2017 Apr 17. PMID:28416661	11	Anya Bauer
12/21/2017	<b>Antibody 10-1074 suppresses viremia in HIV-1-infected individuals.</b> Caskey M, Schoofs T, Gruell H, Settler A, Karagounis T, Kreider EF, Murrell B, Pfeifer N, Nogueira L, Oliveira TY, Learn GH, Cohen YZ, Lehmann C, Gillor D, Shimeliovich I, Unson-O'Brien C, Weiland D, Robles A, Kümmerle T, Wyen C, Levin R, Witmer-Pack M, Eren K, Ignacio C, Kiss S, West AP Jr, Mouquet H, Zingman BS, Gulick RM, Keler T, Bjorkman PJ, Seaman MS, Hahn BH, Fätkenheuer G, Schlesinger SJ, Nussenzweig MC, Klein F. <i>Nat Med</i> . 2017 Feb;23(2):185-191. doi: 10.1038/nm.4268. Epub 2017 Jan 16. PMID:28092665	6	Ziyang Xu
1/11/2018	<b>Natural killer cells migrate into and control simian immunodeficiency virus replication in lymph node follicles in African green monkeys.</b> Huot N, Jacquelin B, Garcia-Tellez T, Rasclé P, Ploquin MJ, Madec Y, Reeves RK, Derreudre-Bosquet N, Müller-Trutwin M. <i>Nat Med</i> . 2017 Nov;23(11):1277-1286. doi: 10.1038/nm.4421. PMID: 29035370	21	Analise Gruenewald
1/25/2018	<b>Trispecific broadly neutralizing HIV antibodies mediate potent SHIV protection in macaques.</b> Xu L, Pegu A, Rao E, Doria-Rose N, Beninga J, McKee K, Lord DM, Wei RR, Deng G, Louder M, Schmidt SD, Mankoff Z, Wu L, Asokan M, Beil C, Lange C, Leuschner WD, Kruij J, Sendak R, Kwon YD, Zhou T, Chen X, Bailer RT, Wang K, Choe M, Tartaglia LJ, Barouch DH, O'Dell S, Todd JP, Burton DR, Roederer M, Connors M, Koup RA, Kwong PD, Yang ZY, Mascola JR, Nabel GJ. <i>Science</i> . 2017 Oct	19	Ziyang Xu

