

12. MHC and antigen presentation

1 unit, Alexander Rudensky, February 18, 2026

1. Peptide binding to MHC class I and MHC class II molecules
2. Two major pathways of antigen presentation sample two main sites of protein turnover
3. Antigen presentation by MHC class II molecules in the endosomal compartment
4. Antigen presentation mediated by classical MHC class I molecules
5. Viral mechanisms to evade antigen presentation by MHC class I molecules
6. Organization and genetics of MHC locus

Discussion paper:

Theisen DJ, Davidson JT 4th, Briseño CG, Gargaro M, Lauron EJ, Wang Q, Desai P, Durai V, Bagadia P, Brickner JR, Beatty WL, Virgin HW, Gillanders WE, Mosammaparast N, Diamond MS, Sibley LD, Yokoyama W, Schreiber RD, Murphy TL, Murphy KM. WDFY4 is required for cross-presentation in response to viral and tumor antigens. *Science*. 2018 Nov 9;362(6415):694-699. doi: 10.1126/science.aat5030. PMID: 30409884; PMCID: PMC6655551..

Reviews:

Pishesha N, Harmand TJ, Ploegh HL. A guide to antigen processing and presentation. *Nat Rev Immunol*. 2022 Dec;22(12):751-764. doi: 10.1038/s41577-022-00707-2. Epub 2022 Apr 13. PMID: 35418563.