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## **Alternative antigen processing and presentation pathways by tumors**

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## STELLINGEN

1. The non-polymorphic MHC molecule Qa-1 has a dual role in immunity, serving as ligand for conserved innate immune receptors and presenting antigenic neo-peptides to rearranged T cell receptors. (this thesis)
2. The peptide transporter TAP creates a competitive environment in the ER for peptide loading, functioning as a lever of control by gradually shifting peptide repertoires from TAP-independent and TAP-dependent sources. (this thesis)
3. The proteases 'signal peptide peptidase' and 'signal peptide peptidase-like 2a' feed the MHC-I presentation pathway with ligands in TAP-deficient cells. (this thesis)
4. The MHC-I presented peptide repertoire of TAP-deficient cells is largely generated by the proteasome. (this thesis)
5. The fact that the monomorphic HLA-E molecule displays an alternative peptide repertoire with HLA-A2-like binding motif, suggests that HLA-E is capable of presenting a diversity of peptides similarly to classical MHC molecules (*Lampen et al, Molecular Immunology 2013, 53(1-2): 126-131*).
6. Human TEIPP peptides constitute tumor antigens capable of eliciting specific CTL responses in vivo and are promising candidates for cancer immunotherapy. (*Durgeau et al. Journal of Immunology 2011, 187(11):5532-9*).
7. TEIPP antigens presented by the mouse homolog of HLA-E are not only induced by TAP-deficiency but also by deficiency in the trimming enzyme ERAAP. (*Nagarajan et al. Nature Immunology 2012, 13 (6): 579-586*).
8. Autophagy mediates the MHC class I loading of human cytomegalovirus (HCMV) antigens via a TAP- and proteasome-independent mechanism (*Tey et al, Blood 2012, 120(5):994-1004*).
9. Making discoveries is the most important part of being a scientist and also the most fun (*J. Yewdell, Nature Reviews Molecular Cell Biology 2008, 9(6):491-4*).
10. The most basic processes of living things are accomplished by molecular engines as complex as man's greatest inventions (*Jeremy Walter, In six days 2001*).
11. Curiosity prompts you to be a scientist but perseverance leads you through the path.
12. The peptides in a cell are like the stars in the sky: there are many but only a few outshine.