

Supporting Information

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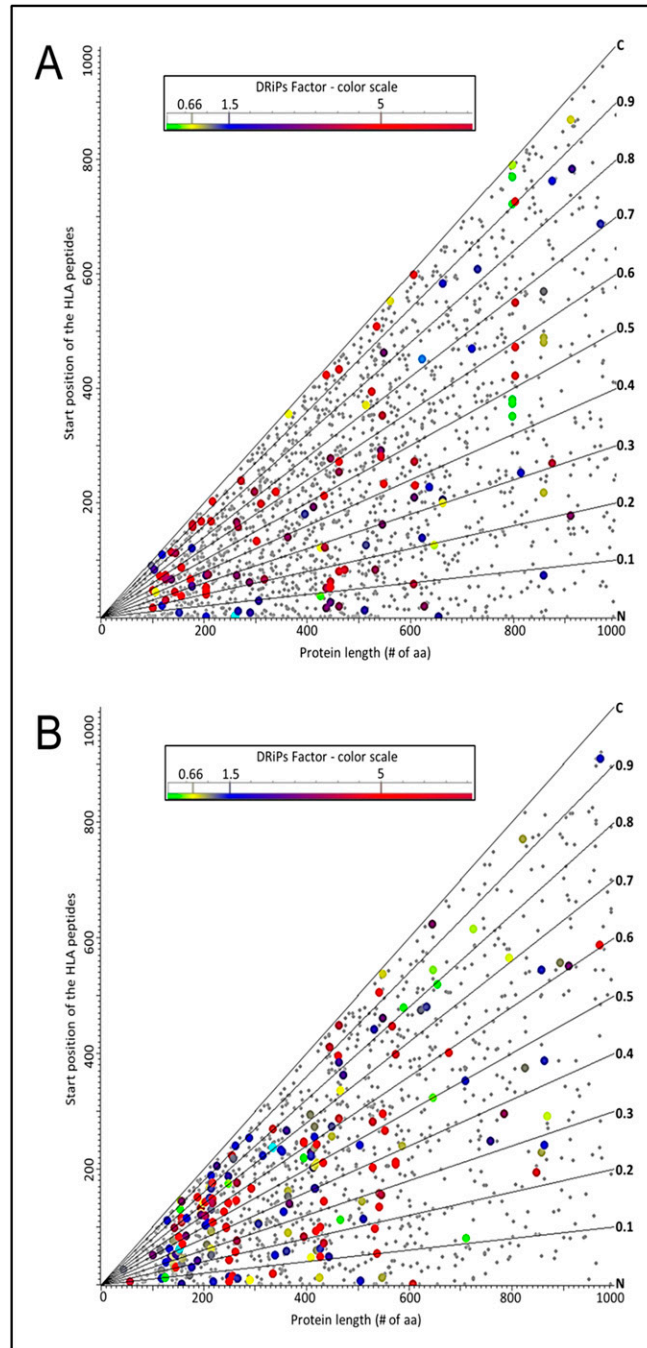


Fig. S1. Relative locations of HLA peptides within the first 1,000 amino acids of their source proteins in RPMI8226 (A) and U937 (B) cells. The small gray dots represent HLA peptides and their source proteins for which the defective ribosome products (DRiPs) factors were not defined. The colored dots indicate HLA peptides with defined DRiPs factors with the color indicating the scale (*Inset*). Diagonal lines represent the percentile values of the locations of the HLA peptides within their source proteins. The *Inset* bar graph displays the fractions of high DRiPs factor peptides (derived from certain DRiPs), low DRiPs factor peptides (derived from certain retirees), and the entire list of HLA peptides, according to their relative locations within their source proteins.

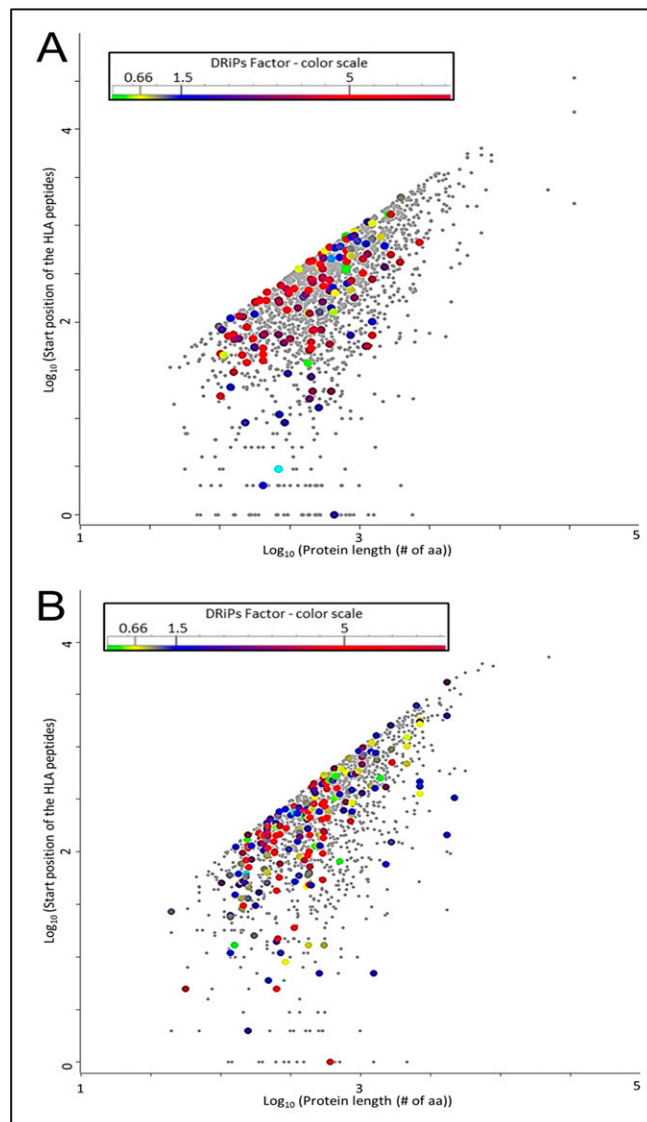


Fig. S2. The position of HLA peptides within the entire lengths of their source proteins in the RPMI8226 (A) and U937 (B) cells. The colors indicate the DRiPs factors of the peptides.

Dataset S1. JY: Kinetics of HLA peptides and their source proteins

[Dataset S1](#)

Averaged DRiPs factor, average of defined DRiPs factors for a specific HLA peptide and its source protein; DRiPs factor HLA class I/protein ratio, ratio of heavy to light isotopes of HLA class I peptides divided by H/L ratio of the source proteins at the specified time points; HLA class I heavy/light ratio, ratio of heavy to light isotopes of HLA class I peptides, representing the ratio of newly synthesized to existing HLA peptides at the specified time points; number of ratios, number of time points with shared HLA peptide and source protein kinetics (HLA peptides with ≥ 2 such ratios were used for further calculations); number of time points with DRiPs factor > 1.5 , peptides with two or more such time points were defined as derived from DRiPs; number of time points with DRiPs factor < 0.66 , peptides with two or more such time points and no time points with DRiPs factor > 1.5 were defined as derived from retirees; percentage from the N termini, relative location of the HLA peptide within its source protein was calculated by dividing the starting position (number of amino acid) of HLA peptide by protein sequence length (number of amino acids in protein sequence); protein heavy/light ratio, ratio of heavy to light isotopes of proteins, representing the ratio of newly synthesized to existing proteins at the specified time points. Other titles were adopted from Perseus software.

Dataset S2. RPMI8226: Kinetics of HLA peptides and their source proteins

[Dataset S2](#)

Averaged DRiPs factor, average of defined DRiPs factors for a specific HLA peptide and its source protein; DRiPs factor HLA class I/protein ratio, ratio of heavy to light isotopes of HLA class I peptides divided by H/L ratio of the source proteins at the specified time points; HLA class I heavy/light ratio, ratio of heavy to light isotopes of HLA class I peptides, representing the ratio of newly synthesized to existing HLA peptides at the specified time points; number of ratios, number of time points with shared HLA peptide and source protein kinetics (HLA peptides with ≥ 2 such ratios were used for further calculations); number of time points with DRiPs factor > 1.5 , peptides with two or more such time points were defined as derived from DRiPs; number of time points with DRiPs factor < 0.66 , peptides with two or more such time points and no time points with DRiPs factor > 1.5 were defined as derived from retirees; percentage from the N termini, relative location of the HLA peptide within its source protein was calculated by dividing the starting position (number of amino acid) of HLA peptide by protein sequence length (number of amino acids in protein sequence); protein heavy/light ratio, ratio of heavy to light isotopes of proteins, representing the ratio of newly synthesized to existing proteins at the specified time points. Other titles were adopted from Perseus software.

Dataset S3. U937: Kinetics of HLA peptides and their source proteins

[Dataset S3](#)

Averaged DRiPs factor, average of defined DRiPs factors for a specific HLA peptide and its source protein; DRiPs factor HLA class I/protein ratio, ratio of heavy to light isotopes of HLA class I peptides divided by H/L ratio of the source proteins at the specified time points; HLA class I heavy/light ratio, ratio of heavy to light isotopes of HLA class I peptides, representing the ratio of newly synthesized to existing HLA peptides at the specified time points; number of ratios, number of time points with shared HLA peptide and source protein kinetics (HLA peptides with ≥ 2 such ratios were used for further calculations); number of time points with DRiPs factor > 1.5 , peptides with two or more such time points were defined as derived from DRiPs; number of time points with DRiPs factor < 0.66 , peptides with two or more such time points and no time points with DRiPs factor > 1.5 were defined as derived from retirees; percentage from the N termini, relative location of the HLA peptide within its source protein was calculated by dividing the starting position (number of amino acid) of HLA peptide by protein sequence length (number of amino acids in protein sequence); protein heavy/light ratio, ratio of heavy to light isotopes of proteins, representing the ratio of newly synthesized to existing proteins at the specified time points. Other titles were adopted from Perseus software.