

**Figure S1.** Calf thymus histone proteins separated by micropreparative 1-D SDS-PAGE and stained with Coomassie blue. Histone H1 is the uppermost band and is of mass 21 kD. Histones 2a, 2b, 3 and 4 form the lower mass band, these proteins being between 11.3 kDa (H4) and 15.4 kDa (H3). They have not been resolved in this separation due to high sample load. Rectangles illustrate areas of the gel excised and digested with trypsin prior to mass spectrometry.



**Figure S2.** Raw spectrum for peptide sequence NDEELNKLLGK<sub>2met</sub> from Histone H2A Type 1. The box illustrates the fragment ions for this peptide sequence as predicted by Mascot. The fragment ions include the b and y-ions as well as these ions in their double charged states (++). Fragment ions that match between our raw data and that predicted by Mascot are illustrated in red/bold.



**Figure S3.** Raw spectrum for peptide sequence NDEELNKLLGK from Histone H2A Type 1. The box illustrates the fragment ions for this peptide sequence as predicted by Mascot. The fragment ions include the b and y-ions as well as these ions in their double charged states (++). Fragment ions that match between our raw data and that predicted by Mascot are illustrated in red/bold.



**Figure S4.** Raw spectrum for peptide sequence ESYSVYVYK<sub>acet</sub>VLK from Histone H2B Type 1. The box illustrates the fragment ions for this peptide sequence as predicted by Mascot. The fragment ions include the b and y-ions as well as these ions in their double charged states (++). Fragment ions that match between our raw data and that predicted by Mascot are illustrated in red/bold.



**Figure S5.** Raw spectrum for peptide sequence ESYSVYVYK from Histone H2B Type 1. The box illustrates the fragment ions for this peptide sequence as predicted by Mascot. The fragment ions include the b and y-ions as well as these ions in their double charged states (++). Fragment ions that match between our raw data and that predicted by Mascot are illustrated in red/bold.



**Figure S6.** Raw spectrum and Mascot theoretical data output for ISGLIYEETR<sub>met</sub> from Histone H4. The fragment ions include the b and y-ions as well as these ions in their double charged states (++), loss of  $H_2O$  (o) and loss of  $NH_3$  (\*). Fragment ions that match between our raw data and that predicted by Mascot are illustrated in red/bold.



**Figure S7.** Raw spectrum and Mascot theoretical data output for ISGLIYEETR from Histone H4. The fragment ions include the b and y-ions as well as these ions in their double charged states (++), loss of H<sub>2</sub>O (o) and loss of NH<sub>3</sub> (\*). Fragment ions that match between our raw data and that predicted by Mascot are illustrated in red/bold.