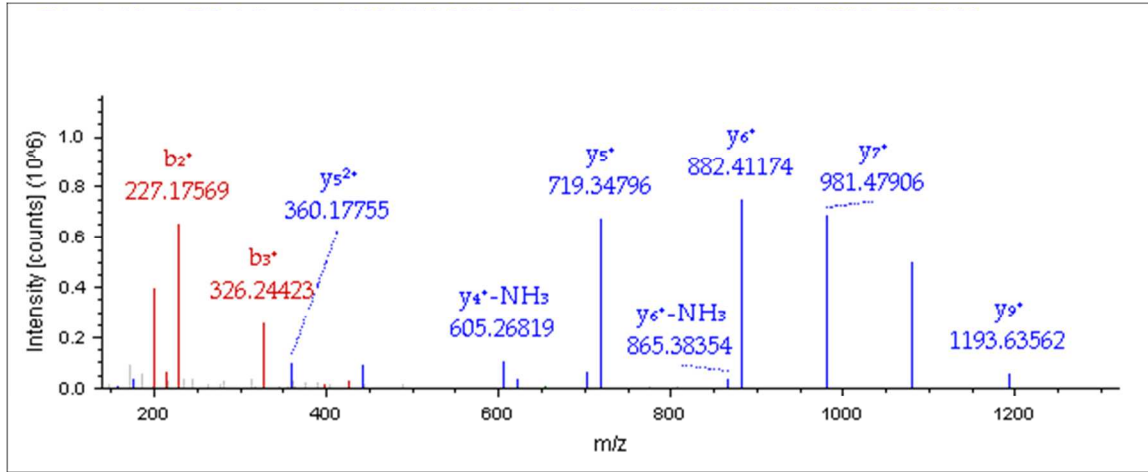
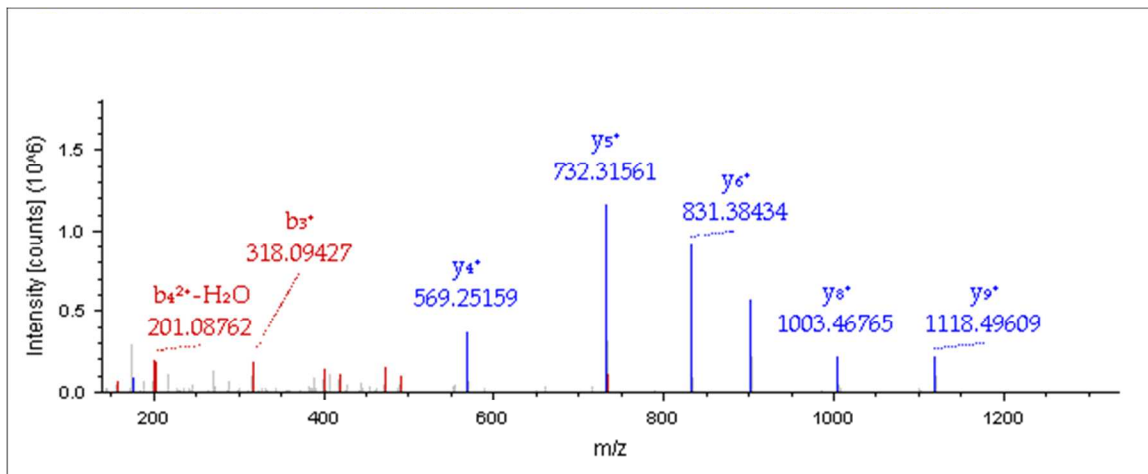


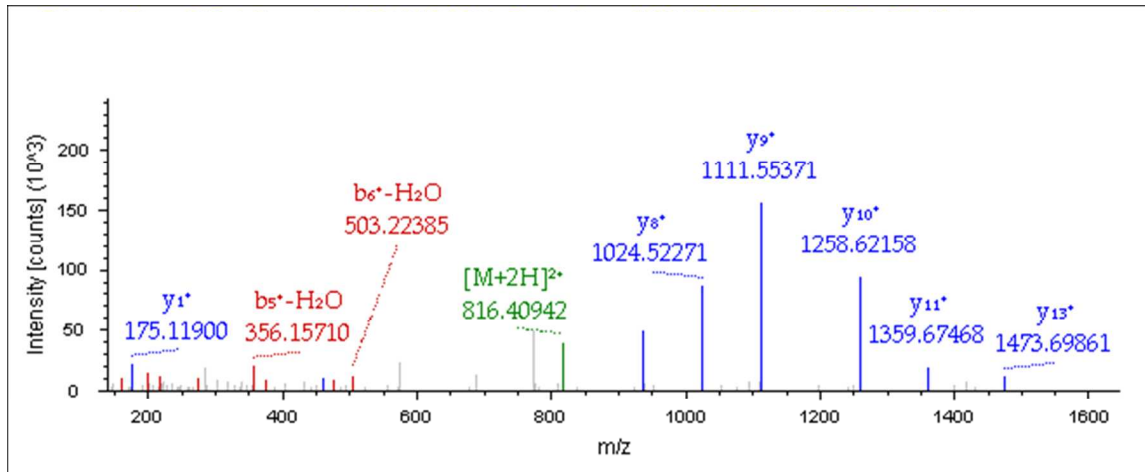
SUPPLEMENTAL FIGURES



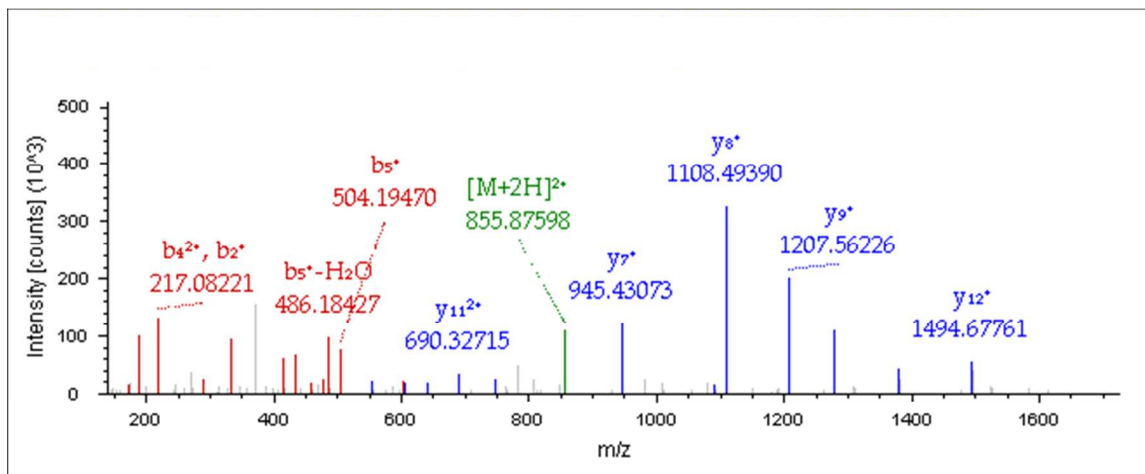
S. Figure 1: MS/MS spectrum of LLVVPWTVR peptide from beta globin. W7-Nitrohydroxytryptophan modification is present.



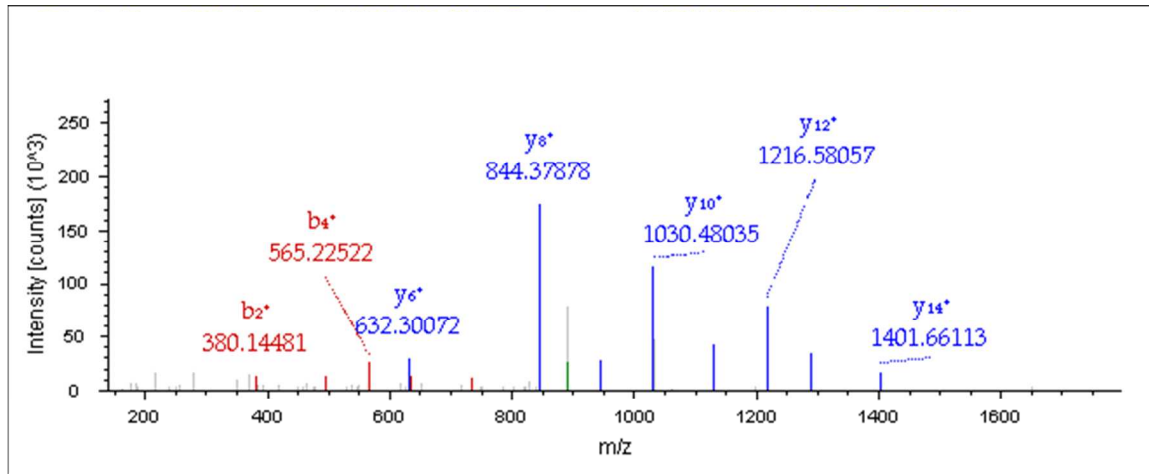
S. Figure 2: MS/MS spectrum of SDDTAVYYDAR peptide from immunoglobulin heavy chain variable region. The y ion series indicate Y8-Nitro.



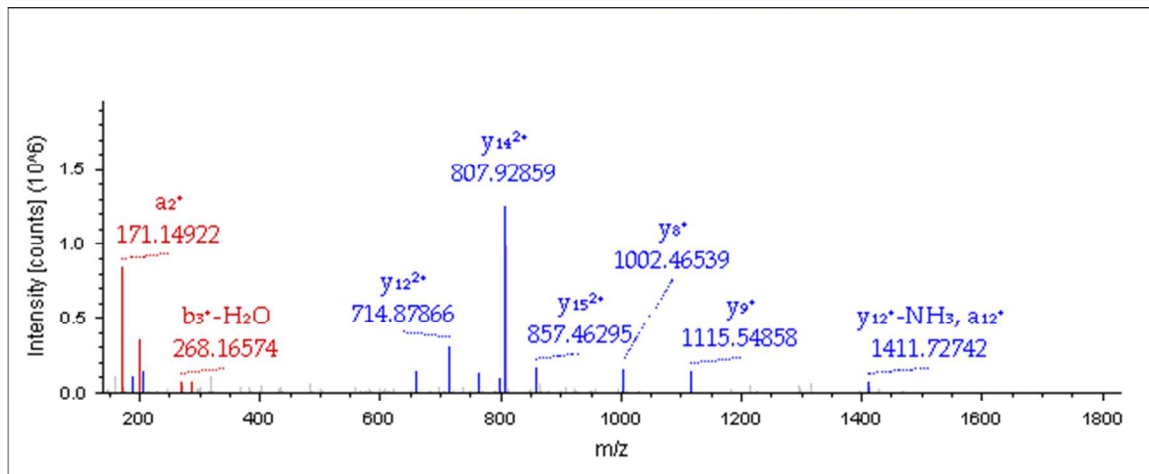
S. Figure 3: MS/MS spectrum of ASGGTFSSYLVGWVR peptide from antibody heavy chain V region. The Y9-Nitro is detected.



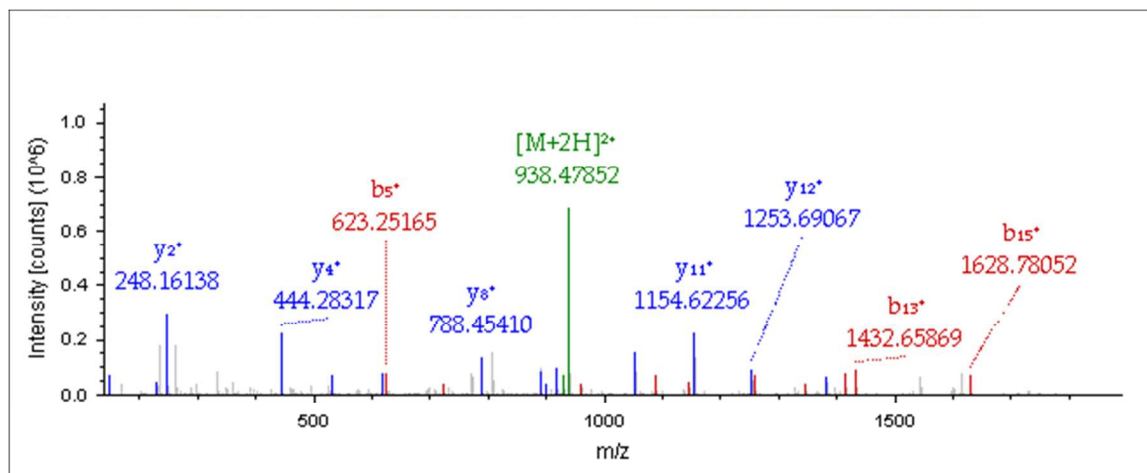
S. Figure 4: MS/MS spectrum of peptide TDDTAVYYCSTELK from immunoglobulin heavy chain variable region. Y8-Nitro and C9-Carbamidomethyl modifications are found on the peptide.



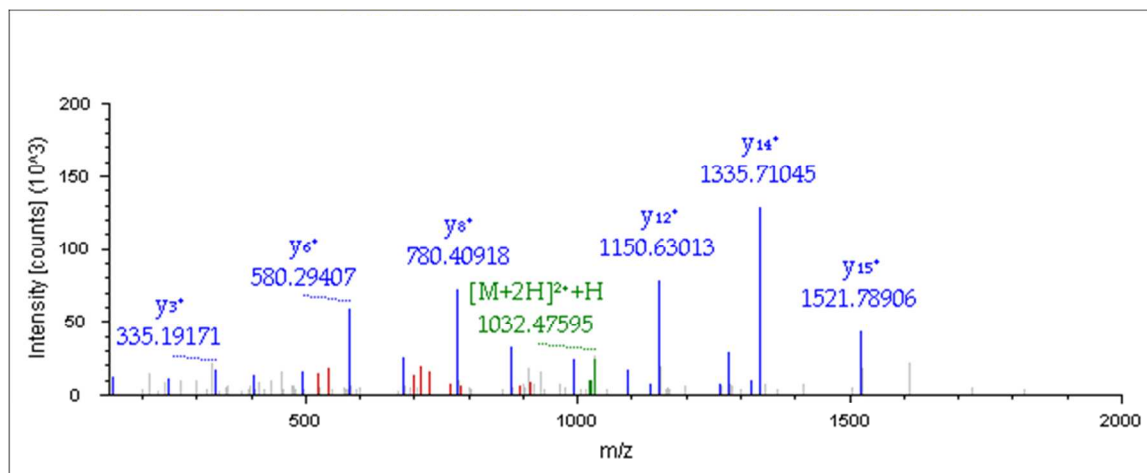
S. Figure 5: MS/MS spectrum of peptide QYNASVSVDPDSSGPER from heterogeneous nuclear ribonucleoprotein K. The peptide contains Q1-Acetyl, Q1-Deamidation and Y2-Nitro modifications.



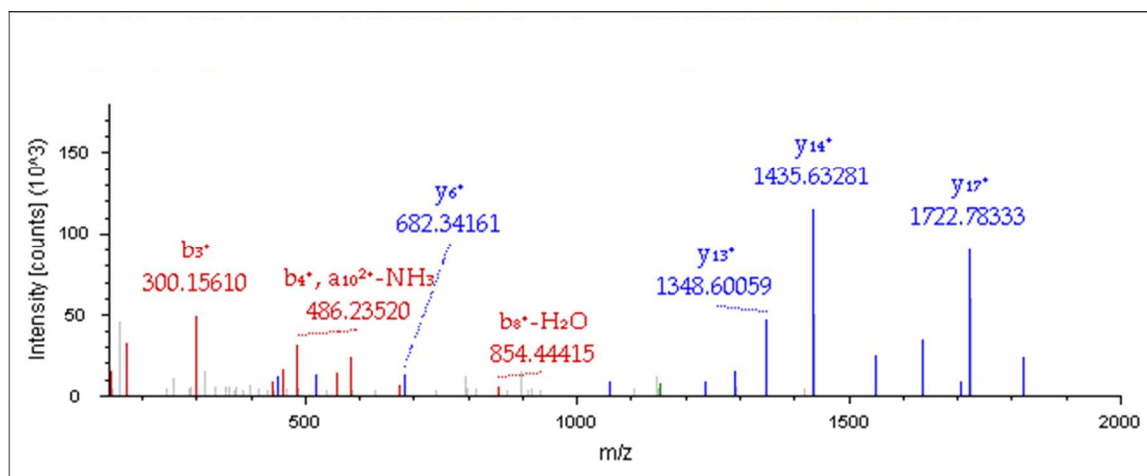
S. Figure 6: MS/MS spectrum of peptide VVSVLTVLHQDWLGGK from recombinant IgG4 heavy chain. The peptide contains Q10-Deamidation and W12-Nitrohydroxytryptophan modifications.



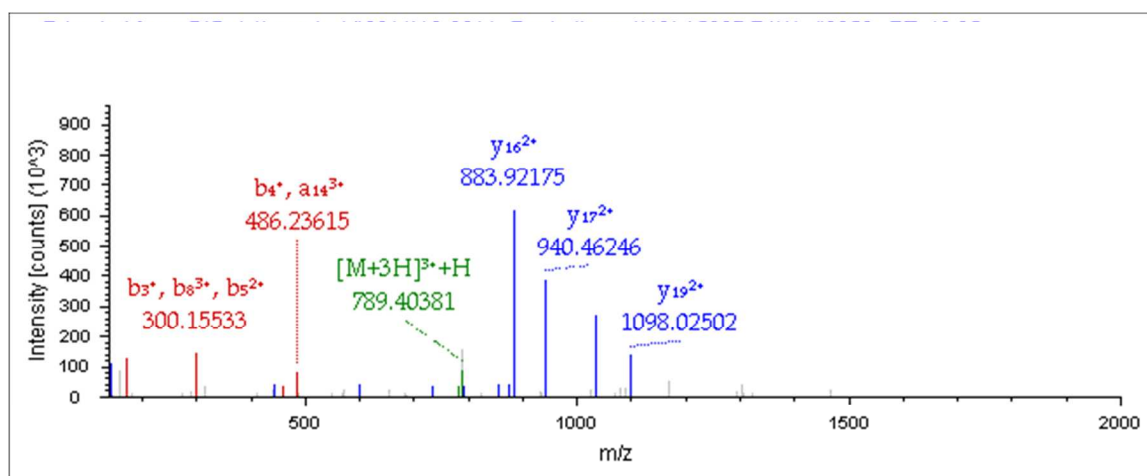
S. Figure 7: MS/MS spectrum of peptide VYANEVTHQGLSSPVTK from antitubulin IgG1 kappa VL chain. The peptide contains Y2-Nitro (44.98508 Da) and N4-deamidation.



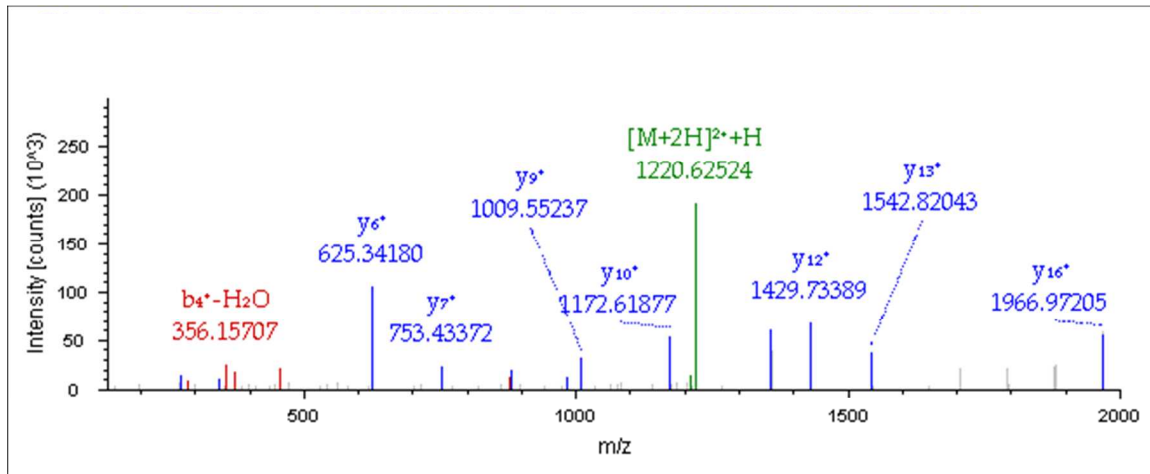
S. Figure 8: MS/MS spectrum of peptide AFDYWGQGLTVSSASTK from immunoglobulin heavy chain. The peptide has Y4-Nitro (44.98508 Da) modification.



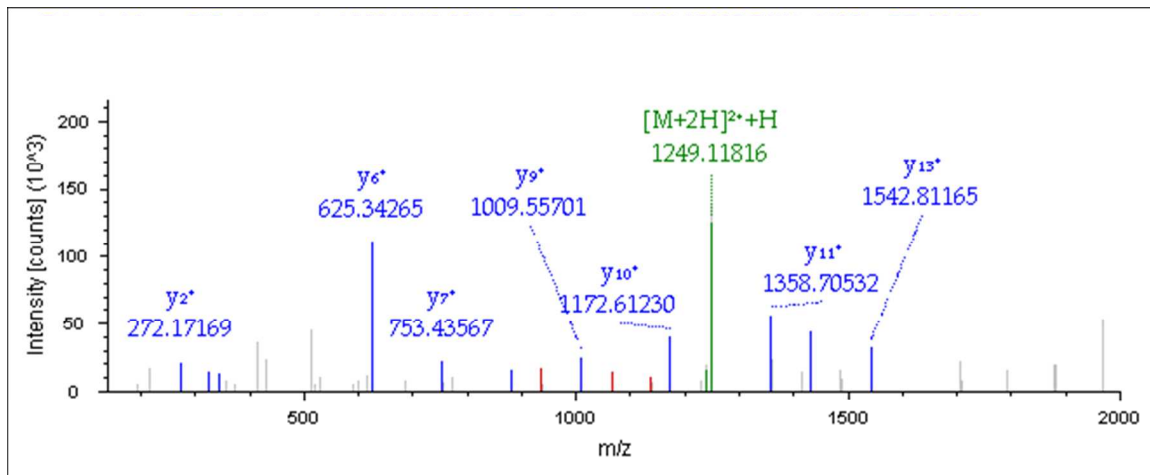
S. Figure 9: MS/MS spectrum of GLQWVSSISGGGVSTYYADSVK peptide from immunoglobulin heavy chain variable region. The peptide contains Q3-Deamidation and Y16-Nitro modifications.



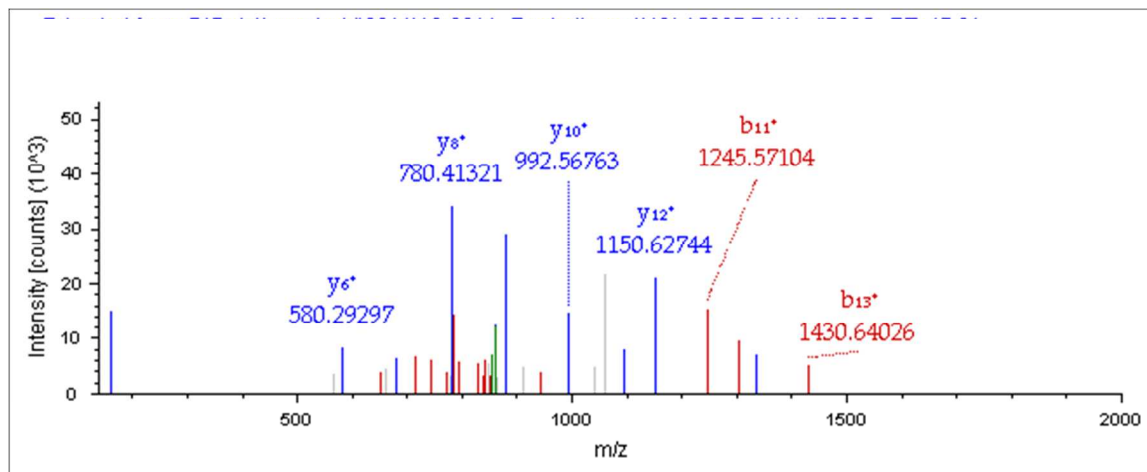
S. Figure 10: MS/MS spectrum of GLEWIGEINRSGATNYPNPSLK peptide from immunoglobulin heavy chain. The peptide has Y16-Nitro and N17-Deamidation modifications.



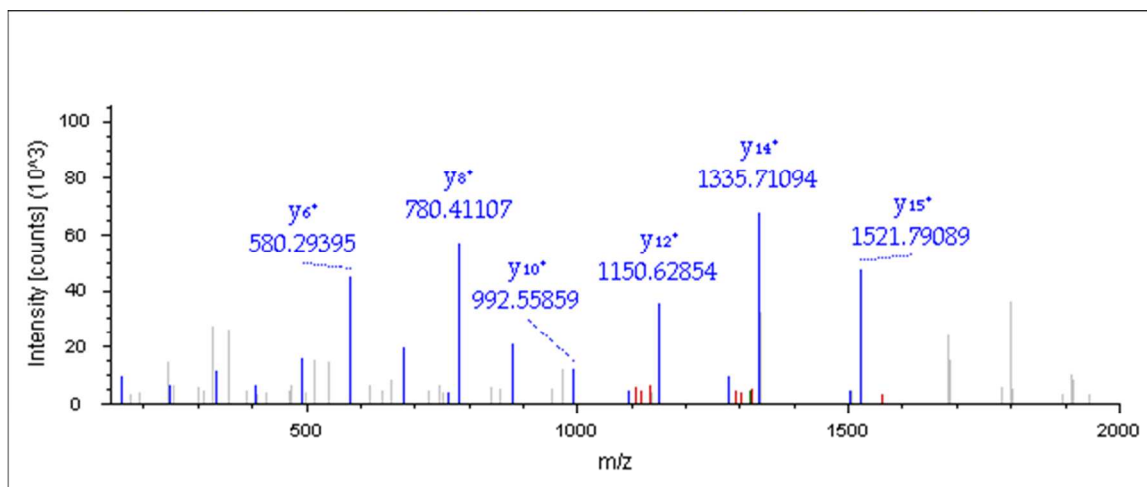
S. Figure 11: MS/MS spectrum of ASQSVTNYLAWYQQKPGQAPR immunoglobulin light chain variable region. The peptide contains N7-Deamidation and Y8-Nitro modifications.



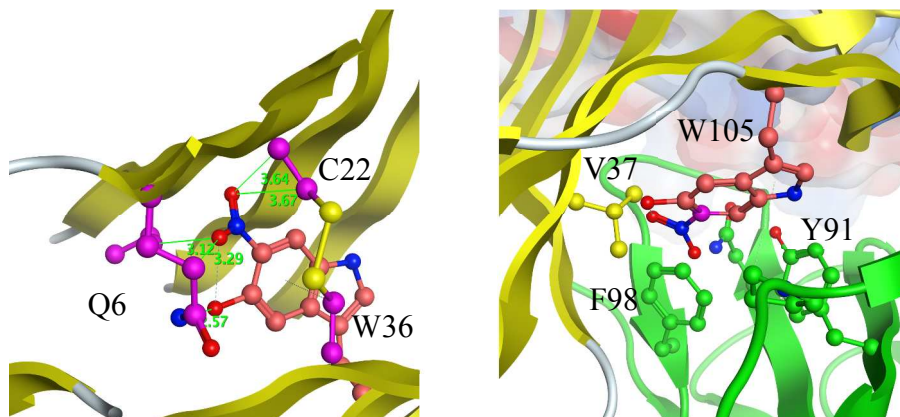
S. Figure 12: The MS/MS spectrum of AGQSISSNYLAWYQQKPGQAPR peptide from immunoglobulin gamma chain, V region or anti-HIV-1 gp120 immunoglobulin kappa chain variable region. The peptide contains N8-Deamidation and Y9-Nitro modifications.



S. Figure 13: MS/MS spectrum of RLGALGSIDDWGQGTLVTVSSASTK peptide from immunoglobulin gamma 4 heavy chain variable region. The peptide contains W11-Nitrohydroxytryptophan modification.



S. Figure 14: MS/MS spectrum of ANVAVAVANDYWGGTLVTVSSASTK from immunoglobulin heavy chain variable region. The peptide has N2-Deamidation, N9-Deamidation and Y11-Nitro modifications.



S. Figure 15: Model of immunoglobulin light and heavy chains demonstrating the effect of nitrohydroxylation on intra-molecular interactions. The cartoon of the heavy and light chains of the immunoglobulin is shown in yellow and green, respectively. a. Heavy chain W36 is located on the β -sheet and the nitrohydroxylated form can have hydrogen bonds with the Q6 and C22. b. Heavy chain W105 is found at the interface between the light and heavy chains. Its nitrohydroxylation may not be well tolerated by the surrounding hydrophobic residues and may effect the intramolecular interactions between immunoglobulin light and heavy chains.

| Case ID | Diagnosis | Age (yrs) | Gender | Post-mortem interval (hr) | Cause of death | CD4 cells/mm ³ | Plasma HIV viral load (RNA copies/ml) | CSF HIV viral load |
|---------|------------------------|-----------|--------|---------------------------|--|---------------------------|---------------------------------------|---------------------|
| 5125 | Control | 24 | F | 9 | Motor vehicle accident | | | |
| 5343 | Control | 48 | F | 13 | Gastric perforation following laproscopy | | | |
| 5346 | Control | 24 | F | 14 | Multiple blunt force injuries | | | |
| 5189 | Control | 40 | M | 14 | Drowning | | | |
| 1093 | HIV/possible HAD | 56 | M | 6 | | ¹ 365 | ¹ 25,669 | NA |
| 6081 | HIV/possible HAD | 35 | M | 2 | | NA | NA | NA |
| 5007 | HIV/possible HAD/HIV-E | 37 | F | 3 | | ² 91 | ² >750,000 | NA |
| 5008 | HIV/possible HAD/HIV-E | 53 | M | 7 | | ³ 128 | ³ 8,641 | ³ 54,061 |

S. Table 1: Clinical and neuropathological information of patients whose tissue were analyzed.

None of the patients were on antiretroviral drugs at the time of death.

HAD, HIV associated dementia; HIV-E, HIV infected with encephalitis; NA, not available; values obtained ¹5 days, ²10 days and ³2 years prior to death.