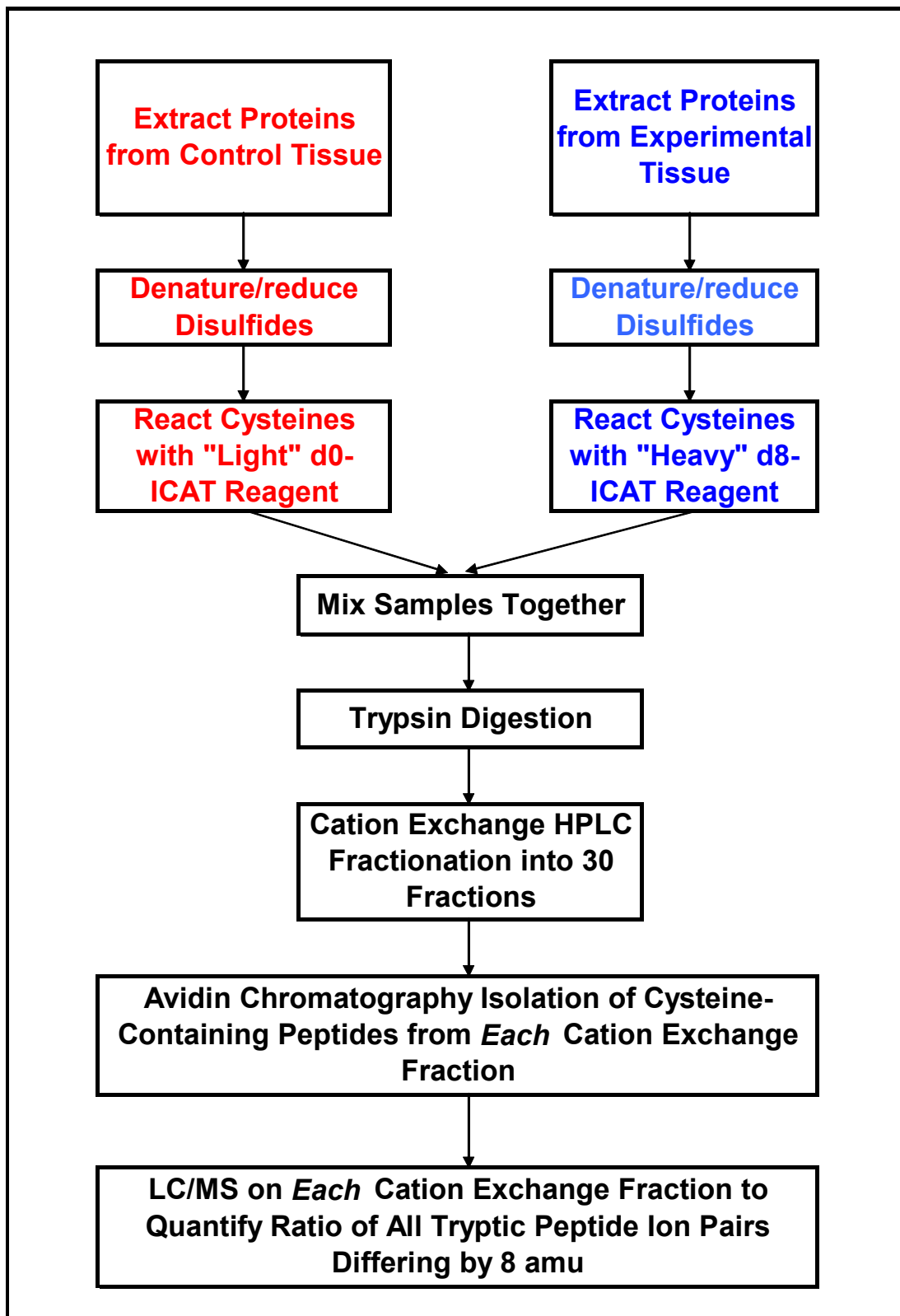
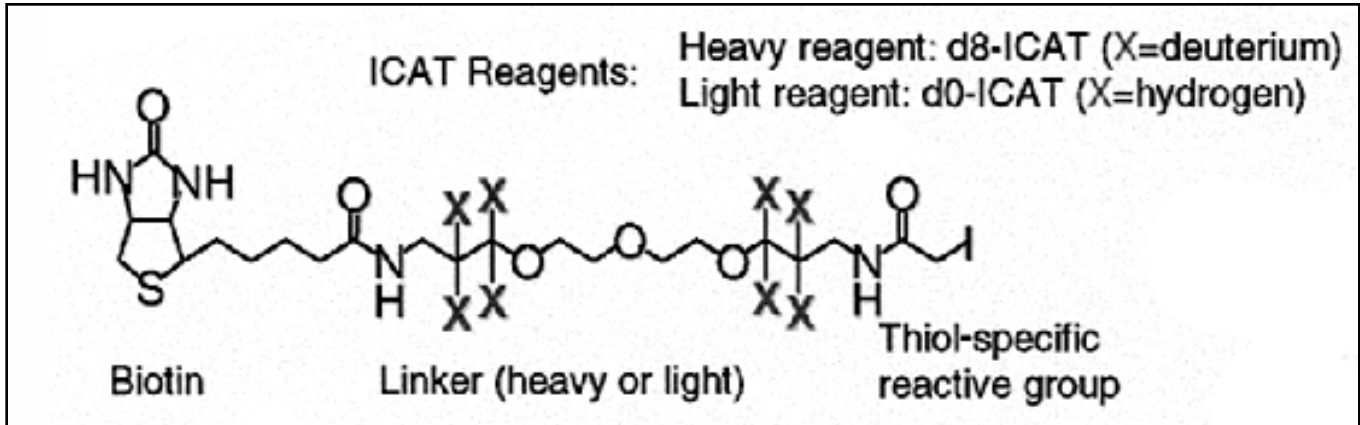


Isotope Coded Affinity Tag (ICAT) Approach to Quantitative Analysis of Protein Expression



Isotope Coded Affinity Tag (ICAT) Reagent



Major Elements in the ICAT Reagent:

- **Thiol-specific reactive group** (iodoacetamide) which reacts with free cysteine residues in the protein extract. Since some cysteine residues in native proteins will be unreactive due to their involvement in disulfide bonds, the protein sample is reduced prior to reacting it with the ICAT reagent.
- **Linker** is a non-reactive bridge between the thiol-specific reactive group and the biotin group which provides for the incorporation of 8 hydrogen or deuterium atoms respectively at the "X" positions and that results in a mass difference of 8 between the "heavy" versus "light" ICAT reagent.
- **Biotin affinity tag group** allows *only* those tryptic peptides which contain cysteine to be affinity-isolated from very complex tryptic digests of whole cell protein extracts.

Quantitative Aspects of ICAT Protein Profiling

