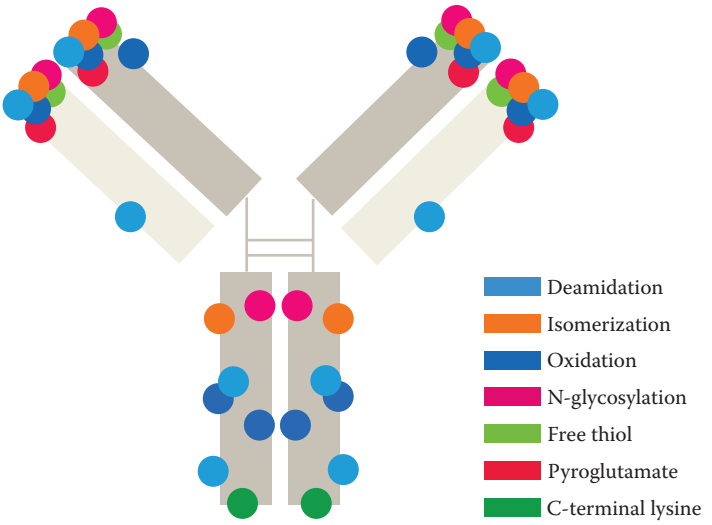

Figure 1.11 Possible sites of various PTMs.

they are specific to each cellular kind that presents a unique combination of milieu interior such as the presence of enzymes and the thermodynamic conditions during the reaction; it is for this reason that these complex chemical reactions are often not controllable by any alteration of the gene sequence, but only by mastering the production conditions during expression. However, this is not relevant to the expression inside prokaryotic organisms (bacteria), or to the very simple expression inside inferior eukaryotes such as yeasts, and PTMs are indigenous to *mammalian* cells like Chinese hamster ovary (CHO) cells.

Examples of PTMs include the following:

- PTMs involving the addition of an enzyme in vivo
  - PTMs involving the addition of hydrophobic groups for membrane localization
    - Myristoylation: The attachment of myristate, a C14 saturated acid
    - Palmitoylation: The attachment of palmitate, a C16 saturated acid
    - Isoprenylation or prenylation: The addition of an isoprenoid group (e.g., farnesol and geranylgeraniol)
      - Farnesylation
      - Geranylgeranylation
    - Glypiation: Glycosylphosphatidylinositol (GPI) anchor formation via an amide bond to C-terminal tail
  - PTMs involving the addition of cofactors for enhanced enzymatic activity