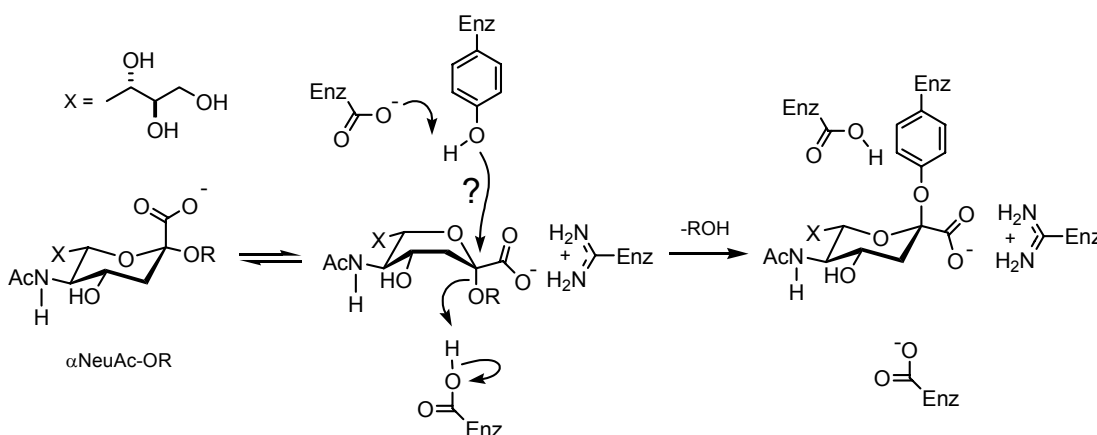


NEURAMINIDASES – CONCERTED OR STEP-WISE MECHANISM OF ACTION?

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The presence of sialic acid (*N*-acetylneuraminic acid) on macromolecules and cell surfaces gives it great importance in cellular and molecular recognition. Removal of sialic acid residues from complex glycoconjugates is catalyzed by neuraminidases. A variety of neuraminidases are encoded by bacteria and viruses (families 33 and 34, respectively). In spite of diverse origins, all neuraminidases are retaining glycosidases of similar structure and – presumably – similar mechanism [1]. In contrast to most retaining glycosidases it is a conserved tyrosine residue that acts as the nucleophile in both the neuraminidase family [2-4] and the *trans*-sialidase family [5, 6]. The results from recent mechanistic studies that probe whether the nucleophilic attack by the active site tyrosine residue occurs simultaneously with or subsequent to aglycon departure (see question mark on Scheme below).



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