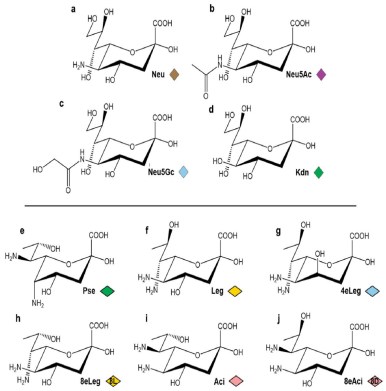
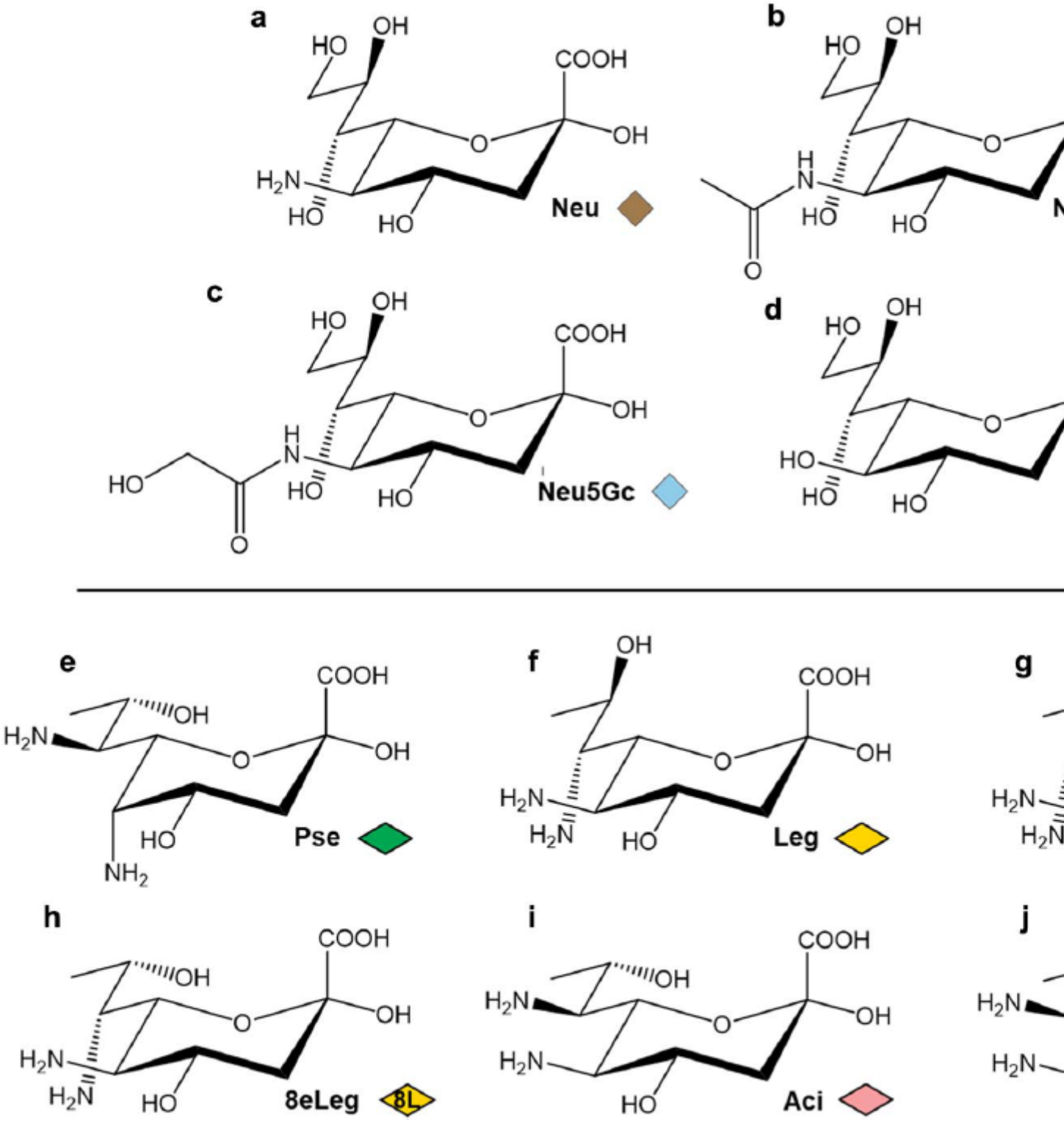


Cataloging Natural Sialic Acids and other Nonulosonic Acids(NulOs), and their Representation Using the Symbol Nomenclature for Glycans

Description

Nonulosonic acids or non-2-ulosonic acids (NulOs) are an ancient family of 2-ketoaldonic acids(Î±-ketoaldonic acids) with a 9-carbon backbone. In nature, these monosaccharides occur either in a 3-deoxy form(referred to as â??sialic acidsâ?•) or in a 3,9-dideoxyâ??sialic-acid-likeâ?• form. The former sialic acids, including vertebrates, are most common in the deuterostome lineage and mimicked by some of their pathogens. The latter sialic-acid-like molecules are found in bacteria and archaea. NulOs are often prominently positioned at the outermost tips of cell surface glycans and have many key roles in evolution, biology and disease. The diversity of stereochemistry and structural modifications among the NulOs contributes to more than 90 sialic acid forms and 50sialic-acid-like variants described thus far in nature. This paper reports the curation of these diverse naturally occurring NulOs on the NCBI sialic acid page (https://www.ncbi.nlm.nih.gov/glycans/sialic.html)

as part of the NCBI-Glycans initiative.



This includes external links to relevant Carbohydrate Structure Databases. As the amino and hydroxyl groups of these monosaccharides are extensively derivatized by various substituents in nature, the Symbol Nomenclature For Glycans (SNFG) rules have been expanded to represent this natural diversity. These developments help illustrate the natural diversity of sialic acids and related NulOs, and

enable their systematic representation in publications and online resources.

Category

1. News