# Article information:

A cancer-unique glycan: de-N-acetyl polysialic acid (dPSA) linked to cell surface nucleolin depends on re-expression of the fetal polysialyltransferase ST8SIA2 gene - PMC
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8451149/>

# Article summary:

1. Polysialic acid (polySia) is a homopolymer of α2–8-linked 5-N-acetyl neuraminic acid residues that modifies six cell surface proteins in humans mainly during fetal development and some blood cells in adults.

2. A derivative of polySia containing de-N-acetyl neuraminic acid residues (dPSA) was identified and found to be expressed on the cell surface of human cancer cell lines and tumors but not normal cells.

3. Expression of dPSA depends on re-expression of the fetal polysialyltransferase ST8SIA2 gene, which offers novel possibilities for diagnosis, prevention and treatment targeting the dPSA antigen that appears to be cancer-specific.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article “A cancer-unique glycan: de-N-acetyl polysialic acid (dPSA) linked to cell surface nucleolin depends on re-expression of the fetal polysialyltransferase ST8SIA2 gene” is a well written and comprehensive review of current research into the role of polysialic acid (polySia) in human cancers. The authors provide an overview of the two genes in humans, ST8SIA2 and ST8SIA4, which code for enzymes that synthesize polySia, as well as a detailed description of their findings regarding a derivative of polySia containing de-N-acetyl neuraminic acid residues (dPSA). The article is clear and concise, providing evidence for their claims through co-immunoprecipitation with anti-dPSA antibodies, mass spectroscopy and Western blot analysis, RNAi and CRISPR knockdown/knockout experiments, flow cytometry and fluorescence microscopy.

The article does not appear to have any major biases or one sided reporting; it presents both sides equally by providing evidence from both normal cells as well as cancer cells. It also provides potential implications for diagnosis, prevention and treatment targeting the dPSA antigen that appears to be cancer specific. However, there are some points that could have been explored further such as possible risks associated with targeting this antigen or other potential implications for its use in diagnosis or treatment. Additionally, more information about how this antigen may be used in practice could have been included in order to provide more practical insights into its potential applications.

# Topics for further research:

* Polysialic acid cancer diagnosis
* Polysialic acid cancer prevention
* Polysialic acid cancer treatment
* ST8SIA2 gene expression
* ST8SIA4 gene expression
* Potential risks of targeting dPSA antigen

# Report location:

<https://www.fullpicture.app/item/24571edc2ce2faf44d41e3a06f2ae0da>