# Article information:

Structural Basis of Pyridostatin and Its Derivatives Specifically Binding to G-Quadruplexes | Journal of the American Chemical Society
<https://pubs.acs.org/doi/10.1021/jacs.2c04775>

# Article summary:

1. G-quadruplexes (G4s) are self-assembled four-stranded structures of guanine-rich DNA or RNA sequences, which are stacked by two or more Hoogsteen hydrogen-bonded G-tetrads and stabilized by cation chelation between G-tetrads.

2. Pyridostatin (PDS) and its derivative PyPDS have been identified as highly specific G4-targeted ligands due to their high specificity and affinity for G4s.

3. Structural information of PDS/PyPDS–G4 complexes was determined by NMR to provide the structural basis to analyze the specific binding of PDS/PyPDS to G4s and to generalize design guidance to customize personalized G4-targeted ligands.

# Article rating:

Appears well balanced: The article presents the information in a reliable and balanced way, without biases and prejudices. The claims made in the article are well supported and, where applicable, all sides of the argument are given opportunity to present their point of view. The article appears trustworthy and reliable.

# Article analysis:

The article “Structural Basis of Pyridostatin and Its Derivatives Specifically Binding to G-Quadruplexes” is a well written, comprehensive review of the current research on pyridostatin (PDS) and its derivatives specifically binding to G-quadruplexes (G4s). The authors provide an in depth overview of the structure, function, and potential therapeutic applications of these compounds. The article is well organized, with clear sections that cover the introduction, results, discussion, conclusions, supporting information, author information, acknowledgments, references, etc.

The authors present a thorough review of the literature on PDS/PyPDS–G4 complexes and provide detailed descriptions of their findings from 1D 1H NMR titration experiments. They also discuss how PyPDS/PDS bind at the 3′ quadruplex–duplex junction rather than the 5′ G-tetrad plane in QDH topology and how their aromatic scaffold matches adaptively with the G-tetrad via π–π stacking for specific structure recognition. Furthermore, they explain how amide bonds and flexible aliphatic amine side chains interact with the G-tetrad or phosphate backbones via hydrogen bonding and electrostatic interactions to further increase affinity.

The article does not appear to be biased or one sided in any way; it presents both sides equally while providing evidence for each claim made throughout the text. It also provides a comprehensive list of references at the end which can be used for further research into this topic if needed. In conclusion, this article is reliable and trustworthy as it provides an unbiased overview of current research on pyridostatin (PDS) and its derivatives specifically binding to G-quadruplexes (G4s).

# Topics for further research:

* Pyridostatin structure
* Pyridostatin binding mechanism
* G-quadruplexes structure
* G-quadruplexes recognition
* Therapeutic applications of pyridostatin
* Hydrogen bonding and electrostatic interactions of pyridostatin

# Report location:

<https://www.fullpicture.app/item/60473be6570baace6da370b58671c0b9>