# Article information:

Crystal structure of the plexin A3 intracellular region reveals an autoinhibited conformation through active site sequestration | PNAS
<https://www.pnas.org/doi/10.1073/pnas.0906923106>

# Article summary:

1. Plexin cell surface receptors are essential for regulating neuronal axon guidance and play important roles in other biological processes.

2. The intracellular region of plexins contains a unique Ras GTPase-activating protein (GAP) domain that is divided into two segments by a Rho GTPase-binding domain (RBD).

3. The crystal structure of the plexin A3 intracellular region reveals an autoinhibited conformation through active site sequestration, providing insights into the regulation mechanisms for plexin signaling.

# 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:

作为一篇科学论文，该文章并没有明显的偏见或宣传内容。然而，它可能存在一些局限性和缺失的考虑点。

首先，文章主要关注了Plexin A3内部区域的晶体结构和其在信号转导中的作用机制。虽然这对于理解神经元轴突引导等方面具有重要意义，但是它并没有提供关于其他Plexin家族成员或其他细胞类型中Plexin的功能和调节机制的信息。

其次，文章没有探讨Plexin与Semaphorin之间相互作用的动力学过程。因此，我们无法确定Semaphorin如何影响Plexin GAP活性，并且也不清楚Rho GTPase如何介导这种影响。

此外，在文章中提到了Plexin GAP对R-Ras和M-Ras的作用，但是并没有详细讨论这些GAP底物在神经元轴突引导中的确切作用。因此，我们需要更多研究来确定这些底物在神经元轴突引导中的特定功能。

最后，在本文中未探讨任何潜在风险或负面影响。虽然这不是本文所关注的问题，但是当涉及到新药物开发时，考虑到潜在风险非常重要。

总之，尽管该文章提供了有价值的信息来理解Plexin A3内部区域结构和信号转导机制，但仍需要更多研究来全面了解Plexin家族成员及其在各种生理过程中的功能和调节机制。

# Topics for further research:

* Other members of the Plexin family and their functions
* Dynamics of the interaction between Plexin and Semaphorin
* Specific roles of R-Ras and M-Ras in axon guidance
* Potential risks or negative effects
* Regulation mechanisms of Plexin in other cell types
* Further research on the functions and regulation of Plexin family members.

# Report location:

<https://www.fullpicture.app/item/8c8d42a5c3c296229e646e86a4cf9760>