# Article information:

Cryo-EM structures of the active NLRP3 inflammasome disc | Nature
<https://www.nature.com/articles/s41586-022-05570-8>

# Article summary:

1. NLRP3 is a versatile inflammasome sensor that detects a range of pathogenic invasions and damage-associated stimuli.

2. NLRP3 mutations cause autoinflammatory diseases, and NLRP3 hyperactivation is associated with many common conditions including cardiovascular, metabolic and neurodegenerative diseases.

3. Cryo-EM structures of the active NLRP3 inflammasome disc provide insight into NLRP3 inflammasome assembly and activation to mount host defences and restore cellular homeostasis.

# 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 “Cryo-EM Structures of the Active NLRP3 Inflammasome Disc” provides an overview of the structure of the NLRP3 inflammasome complex, which is involved in detecting pathogenic invasions and damage-associated stimuli, as well as its role in autoinflammatory diseases and other common conditions such as cardiovascular, metabolic, and neurodegenerative diseases. The article presents evidence for the structure of the complex through cryo-electron microscopy (cryo-EM), which has been used to study protein complexes in recent years due to its ability to capture high resolution images at low temperatures.

The article appears to be reliable overall; it cites relevant research studies from reputable sources, provides detailed descriptions of the structure of the complex, and includes diagrams that illustrate key points. However, there are some potential biases present in the article that should be noted. For example, while it does mention possible risks associated with NLRP3 hyperactivation, it does not explore counterarguments or present both sides equally when discussing these risks. Additionally, some claims made in the article are not supported by evidence or data; for instance, while it states that NEK7 is important in mitosis independent of its kinase activity, no data or evidence is provided to support this claim. Furthermore, there are some missing points of consideration; for example, while it mentions that ATPγS was added to lock NLRP3 in an active conformation during purification experiments, it does not discuss how this could potentially affect results or introduce bias into experiments.

In conclusion, while this article appears to be generally reliable overall due to its citation of relevant research studies from reputable sources and detailed descriptions of the structure of the complex being studied, there are some potential biases present that should be noted when evaluating its trustworthiness and reliability.

# Topics for further research:

* NLRP3 inflammasome structure
* Cryo-electron microscopy
* NLRP3 hyperactivation risks
* NEK7 kinase activity
* ATPγS effects on NLRP3
* Bias in purification experiments

# Report location:

<https://www.fullpicture.app/item/1b56f4eff029e6ca05920dcba4296ef3>