# Article information:

Therapeutically reprogrammed nutrient signaling enhances nanoparticulate albumin bound drug uptake and efficacy in KRAS-mutant cancer - PMC  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8491539/>

# Article summary:

1. Nanoparticulate albumin-bound paclitaxel (nab-paclitaxel, nab-PTX) is a widely prescribed nanomedicine in clinical use, yet it remains unclear how nanoformulation impacts its behavior in the tumor microenvironment.

2. Using confocal microscopy and tissue clearing techniques, this study found that nab-PTX uptake is profoundly and distinctly affected by cancer-cell autonomous RAS signaling, and RAS/RAF/MEK/ERK inhibition blocked its selective delivery and efficacy.

3. The study also revealed that IGF1R kinase inhibitors enhance uptake and efficacy of nab-PTX by mimicking glucose deprivation and promoting macropinocytosis via AMPK, a nutrient sensor in cells.

# 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:

This article provides an interesting insight into the effects of nanoparticulate albumin-bound paclitaxel (nab-paclitaxel, nab-PTX) on the tumor microenvironment. The authors have used confocal microscopy and tissue clearing techniques to image the delivery and cellular uptake of nab-PTX in mouse models of KRAS-mutant NSCLC and PDAC at a single cell resolution. The results are presented clearly with detailed explanations for each step taken during the experiment as well as for the data analysis performed.

The article appears to be unbiased as it presents both sides of the argument equally without any promotional content or partiality towards one side or another. It also mentions potential risks associated with using nab-PTX such as mixed results from clinical trials as well as genetic experiments which did not yield expected results.

The article does not appear to contain any unsupported claims or missing points of consideration; however, there are some unexplored counterarguments which could have been discussed such as whether other factors besides RAS/RAF/MEK/ERK inhibition could affect the selective delivery and efficacy of nab-PTX or if there are any other potential therapeutic strategies which could be used to improve its uptake and efficacy.

In conclusion, this article appears to be reliable and trustworthy due to its clear presentation of data along with detailed explanations for each step taken during the experiment as well as for the data analysis performed without any promotional content or partiality towards one side or another.

# Topics for further research:

* RAS/RAF/MEK/ERK inhibition
* Nanoparticulate albumin-bound paclitaxel
* Tumor microenvironment
* Confocal microscopy
* Tissue clearing techniques
* Selective delivery of nab-PTX

# Report location:

<https://www.fullpicture.app/item/02690de49c32ffa8d0d3627519e9e9f3>