

# PureCube Fe-NTA Agarose and MagBeads

## References

„R2-P2 rapid-robotic phosphoproteomics enables multidimensional cell signaling studies“

Mario Leutert, Ricard A Rodríguez-Mias, Noelle K Fukuda, Judit Villén

doi: <https://doi.org/10.1101/2023.07.11.548597>

## Benefits and Features

- Enhanced Sensitivity and Specificity:** The Fe-NTA MagBeads enable researchers to achieve superior sensitivity and specificity in identifying and quantifying phosphorylated peptides, allowing for more accurate analysis of cell signaling events.
- Automation-Friendly:** The phosphoproteomics procedure is simplified by the ease of automation of Fe-NTA MagBeads. The ability to incorporate these beads into automated processes reduces waiting time and boosts productivity. A great example from the Villén lab at UW led by Dr. Mario Leutert can be found here: <https://pubmed.ncbi.nlm.nih.gov/31885202/>.
- Superiority:** In his 2019 publication, Leutert et al. compared three different types of IMAC beads and TiO<sub>2</sub> microspheres. Figure 1 highlights our PureCube Fe-NTA magnetic beads as the best option for phosphopeptide enrichment. With our Fe-NTA MagBeads, unique phosphopeptides (Fig. 1 A, C) were enriched with the highest efficiency (Figure 1 B).

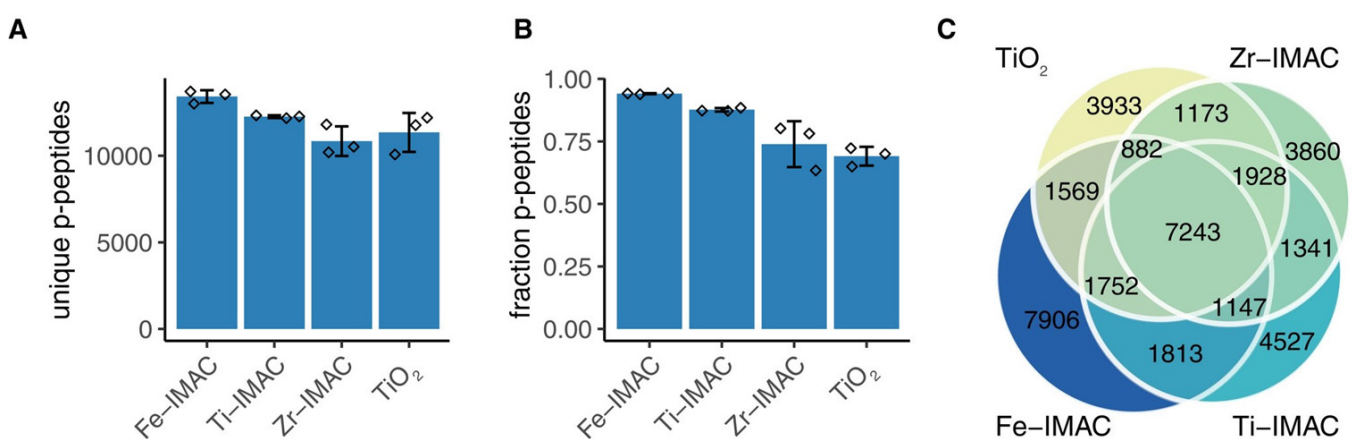


Figure 1: Comparison of phosphopeptide enrichment performance between four different products/methods. A: Number of unique phosphopeptides identified by the different enrichments (mean +/- SD, n = 3). B: Phosphopeptide enrichment efficiency is shown as the fraction of phosphorylated peptides over total peptides (mean +/- SD, n = 3). C: Venn diagram of identified phosphopeptides by the different phosphopeptide enrichment methods. Source: Leutert et al. (2019)

4. **Reusability:** A notable advantage of Cube’s Fe-NTA MagBeads is their reusability. By stripping the beads and reusing them several times, researchers can maximize cost-effectiveness while assuring quality control by evaluating the enrichment’s effectiveness after stripping.
5. **Cost-benefit Analysis:** Analyzing and comparing products from various manufacturers and suppliers can often prove to be a laborious task. This is why we aim to provide researchers with a clearer understanding of the prevailing pricing landscape in the market, facilitating informed decision-making.

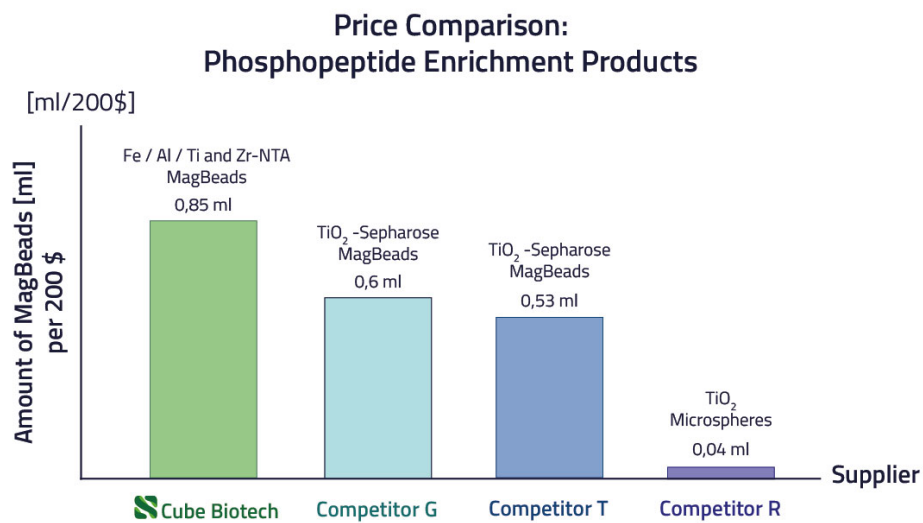


Figure 2: Cube Biotech does not only offer the best single product for phosphopeptide enrichment but also the most prize-efficient one. The products of Competitor G range at about half the volume of beads you get for 200 USD in comparison to Cube Biotech. Suspension rates vary only slightly with 25% for the products of Cube Biotech, to 20% for Competitor G.

6. **Application in Human Cell Lines and Tissues:** While initially optimized for yeasts, Cube Biotech’s Fe-NTA MagBeads have proven to be “equally effective in human cell lines and tissues”. This versatility makes them a valuable tool for studying cell signaling and conducting phosphoproteomics analyses in various biological contexts.

## Conclusion

Cube Biotech’s Fe-NTA MagBeads offer proteomics researchers an invaluable tool for optimizing phosphoproteomic workflows. With their enhanced sensitivity, automation-friendly design, reusability, and applicability to both yeasts and human cell lines, these beads enable more reproducible results and deeper insights into phosphorylation dynamics. Scientists highly recommend Cube Biotech products, which also include nanodiscs, protein purification kits, and custom IMAC resins, making Cube Biotech GmbH a trusted partner for advanced proteomics research.

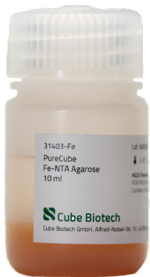
FAQ

What can I do with Fe-NTA beads?

Fe-NTA beads serve two purposes. First, they can be used as the matrix to bind and thus enrich phosphopeptides. Second, they can be used similar to e.g Ni-NTA to purify His-tagged proteins via IMAC.

Can I enrich all phosphopeptides using Fe-NTA?

No, this is not possible. Not all phosphopeptides bind to Fe-NTA beads. As shown in figure 1 multiples bead types must be used to cover all phosphopeptides off a cell. Because of that we also offer Ti- Zr- and Al-NTA beads.



Product	Catalog No.	Package size
PureCube Fe-NTA Agarose	31403-Fe	10 ml
	31405-Fe	50 ml
	31410-Fe	250 ml
	31412-Fe	500 ml
PureCube Fe-NTA MagBeads	31501-Fe	1 ml
	31590-Fe	4 x 25 ml
	31505-Fe	5 ml
	31525-Fe	25 ml