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May 2007

[Table of Contents](#)

[Editorial](#)

[Columns](#)

[Features](#)

[Editorial Advisory Board](#)



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Volume 19 | Issue 22 | Page 24

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by JR Minkel

TOOLS AND TECHNOLOGY

## Pure Protein *sans* Columns

Intein-based protein-purification strategy avoids column chromatography

*The Scientist* 2005, **19**(22):24

**Published** 21 November 2005

Two independent groups have demonstrated a new method for purifying proteins that may offer a simpler, cheaper alternative to large-scale column purification.

The technique hinges on inteins, peptides that naturally splice themselves cleanly from any protein to which they are attached. Both research teams inserted an intein between their desired proteins and an elastin-like polypeptide (ELP), which reversibly precipitates from solution in the presence of salt or at temperatures less than 30-40°C.

A team led by Ashutosh Chilkoti of Duke University and Carlos Filipe of

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McMaster University in Canada used the technique to purify thioredoxin; their protocol yielded 50 mg per liter of 90% pure protein in solution. David Wood and colleagues at Princeton University opted for an intein that splices itself in three to eight hours at neutral pH. Their approach, tested on 10 proteins of diverse sizes, yielded 5-15 mg of protein per liter. "It's a really simple way to purify protein," says Wood.

George Georgiou, protein researcher at the University of Texas at Austin, says the technique will likely be useful for high-throughput protein expression. "It appears that the approach is applicable to a variety of cytoplasmic proteins."

[Return to top](#)

## References

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