

# Dynabeads<sup>®</sup> His-Tag Isolation and Pulldown

2010/2  
技術営業部



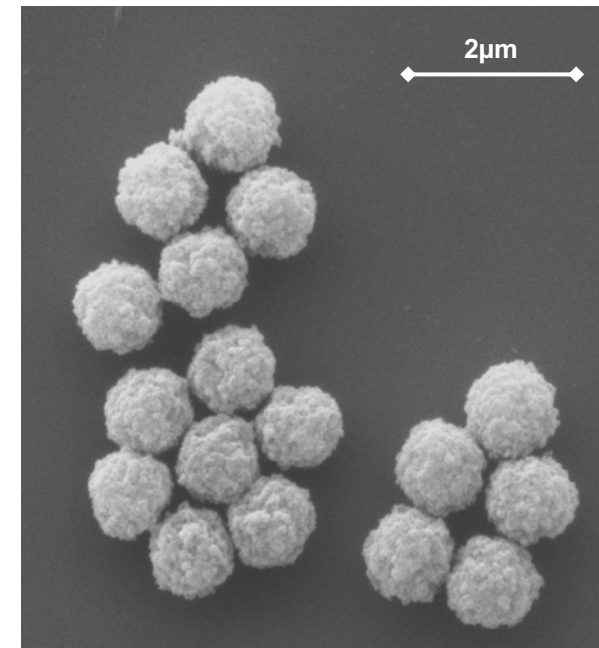


# Overview

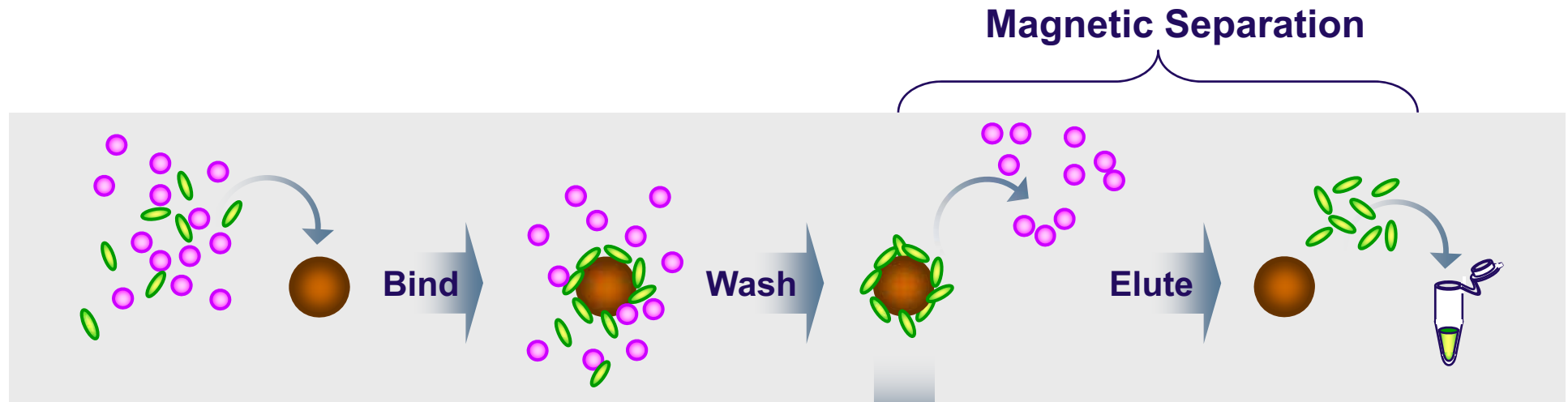
- Dynabeads His-Tag Isolation and Pulldown
  - physical / magnetic properties
  
- Application data for protein isolations
  - Workflow
  - Reproducibility
  - Stability
  - Competitor study
  
- Summary

# Dynabeads His-tag Isolation and Pulldown

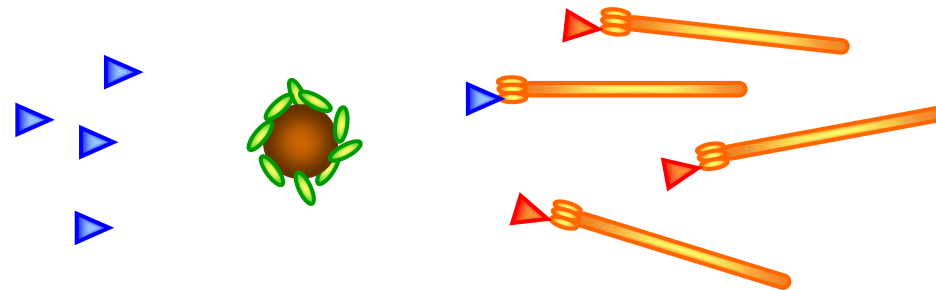
- Uniform, monosized (1 $\mu$ m diameter) superparamagnetic beads
- Beads coated with novel IMAC chemistry for chelating Co<sup>2+</sup>
- Same high specificity of TALON™ chemistry but with greatly enhanced capacity
- Protein binding occurs on the bead surface only
  - Fast interaction
  - No target size limit
  - Low background
  - Easy handling
  - Secondary applications
- Ideal for automation



# His-Tag Isolation Protocol

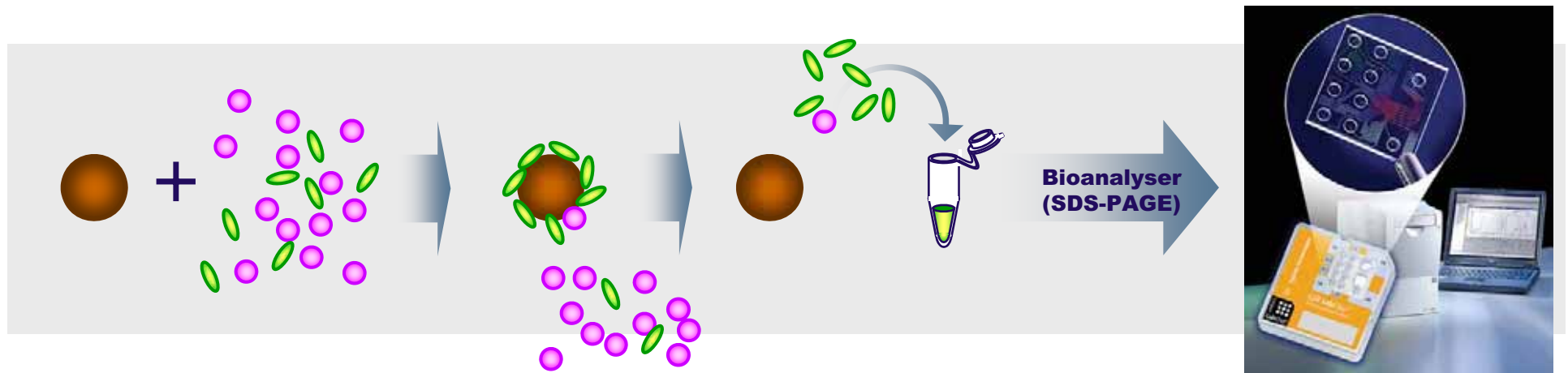
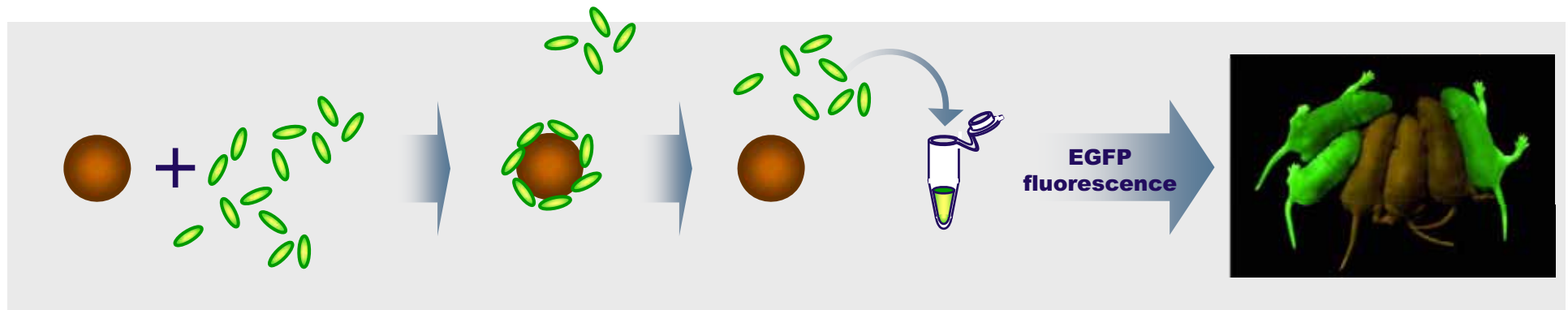


**Secondary Applications!**



**From lysate to purified protein in 20 min!**

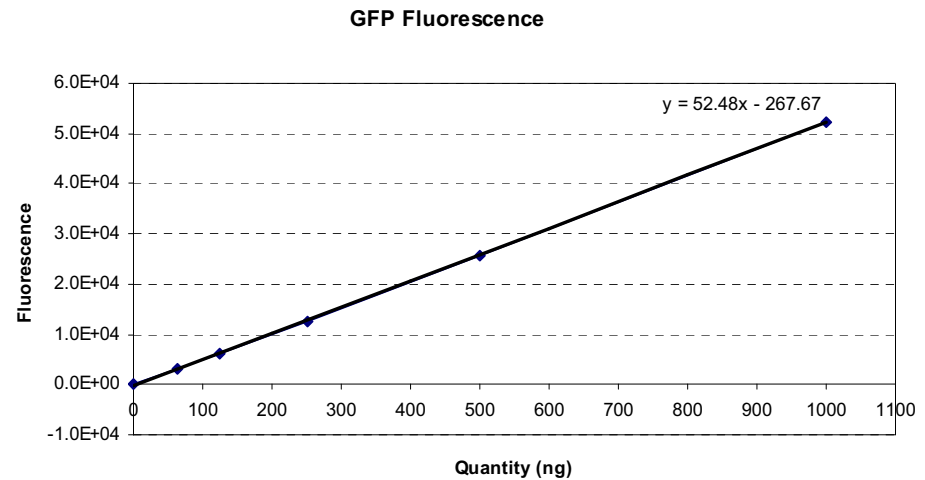
# Testing Dynabeads for His-tag binding



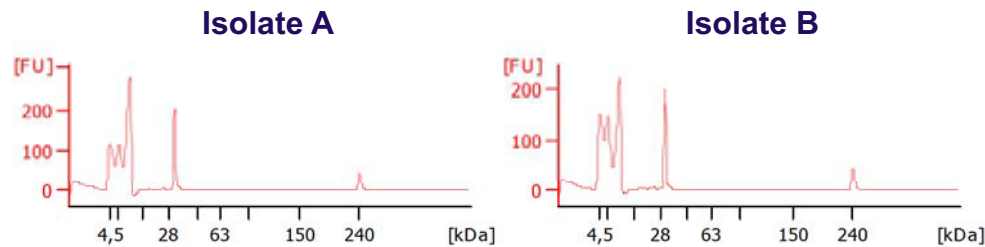
# GFP Fluorescence Measure vs Bioanalyser readout

## GFP readout

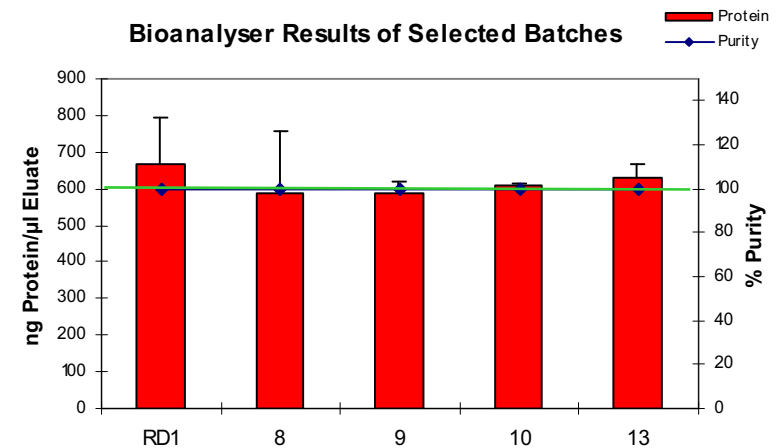
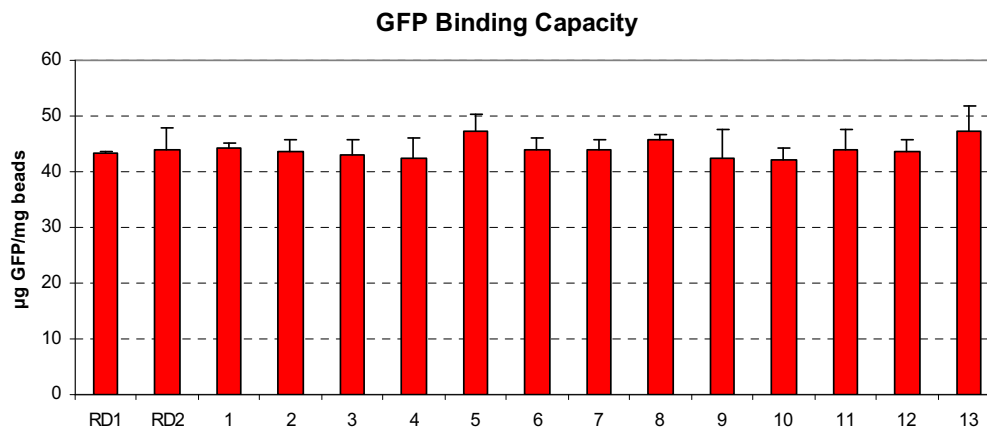
GFP (ng/well)	Fluorescence
1000	52363
500	25784
250	12659
125	6224
62.5	3013
0	30.5



## Bioanalyser readout

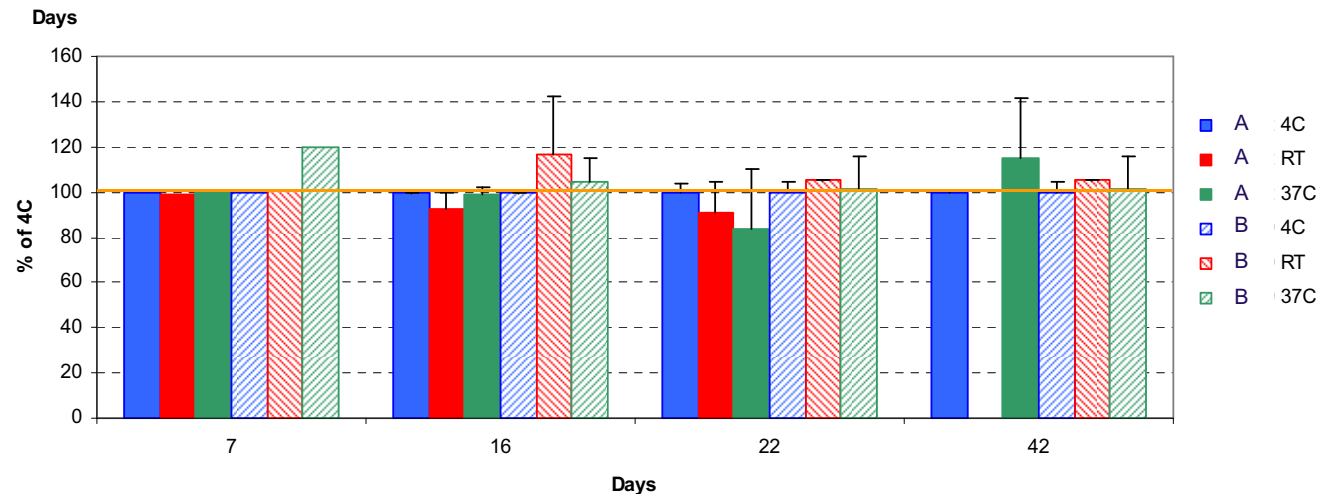
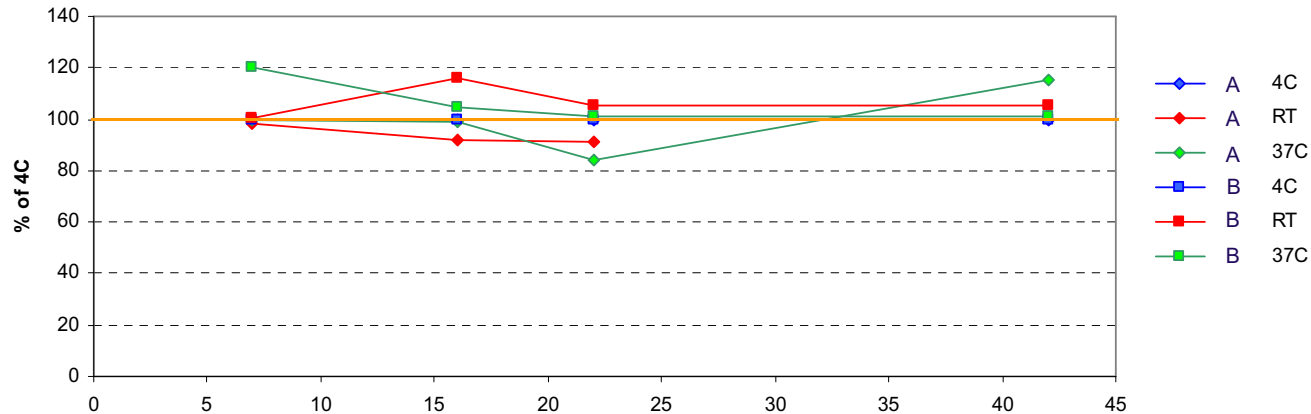


# GFP Binding Capacity and Bioanalyser Data



- GFP binding capacity vs Bioanalyzer quantification of Selected Dynabeads batches

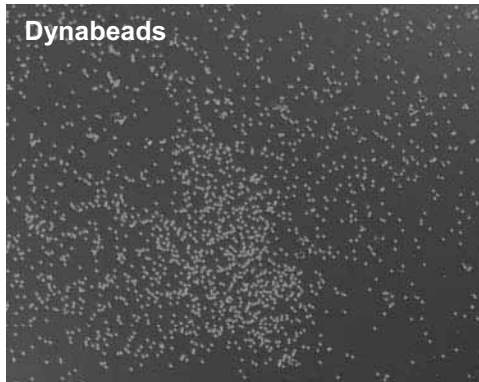
# Accelerated Stability Study of 2 Different Dynabead batches



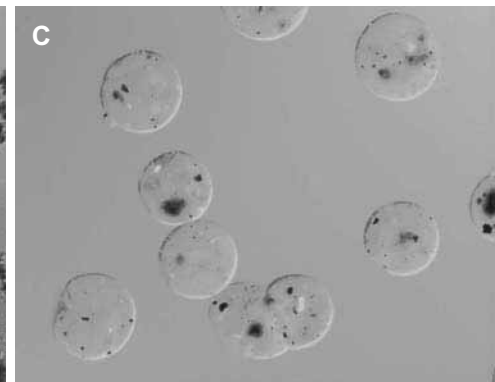
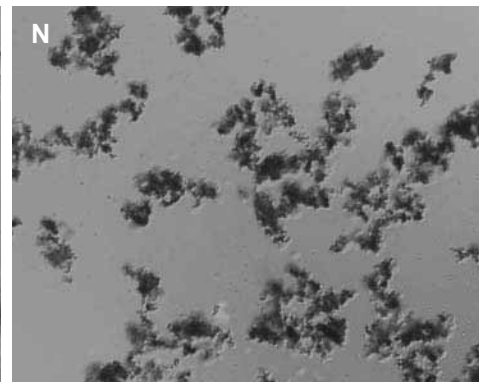
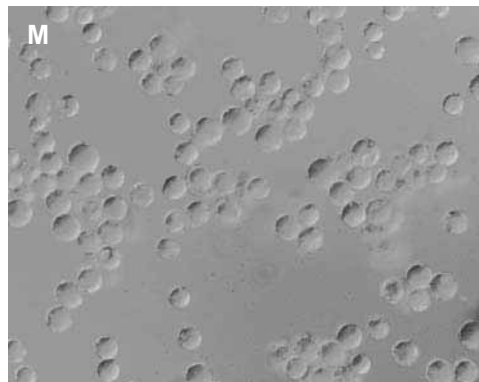
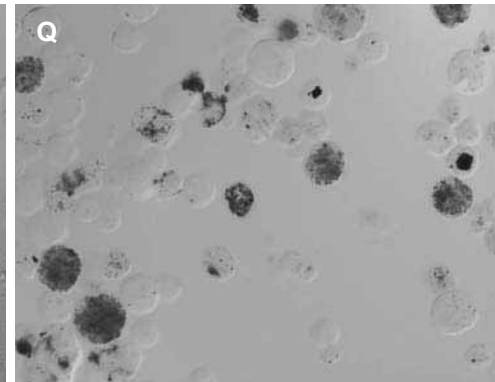
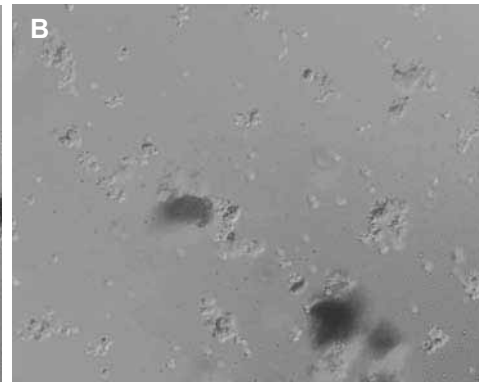
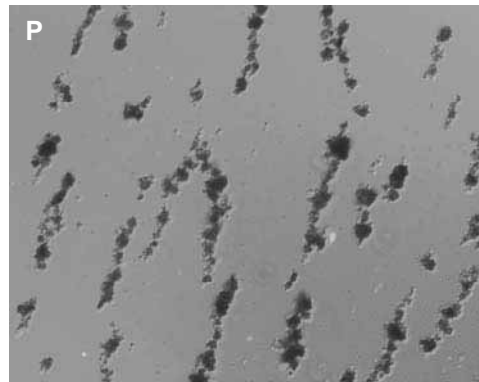
- Aliquots of batches A and B were stored at 4°C, RT, and 37°C for up to 42 days.
- Purity is >90% for all (data not shown)



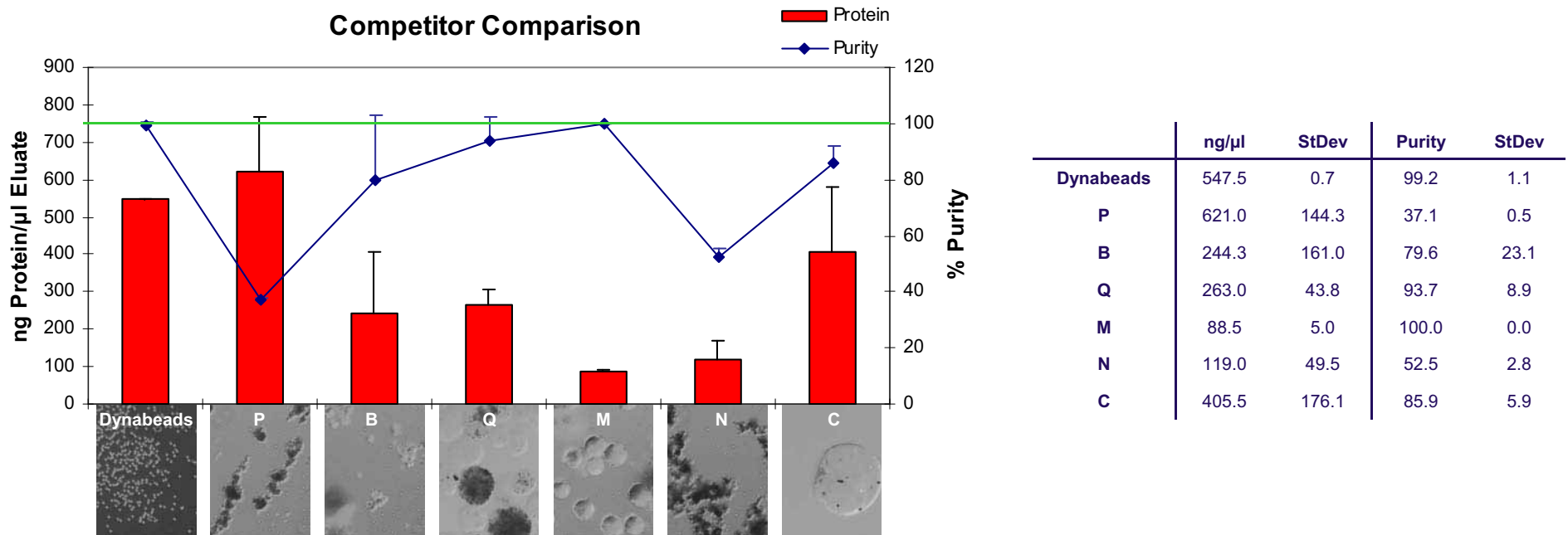
# Competitor Comparison: Bead Morphology



- Compared different magnetic 'beads' by light microscopy
- 40x enhancement for all



# Competitor Comparison: Capacity Per Equal Volume of Beads



- The amount and purity of the protein isolated with 50μl of each bead slurry were compared
- Competitor P, B, and N have short incubations (5 min; most similar to our protocol)
- Competitor Q, M, and C have very long incubations (30-60 min)
- Best competitors → Q and C
  - Similar purity and decent capacity
  - The others lack in either purity or capacity or both
- HOWEVER:
  - Capacity per μl bead is ~57% of Dynabeads® His-Tag Isolation and Pulldown (GFP quantification results; data not shown)
  - Isolation time from lysate to purified protein takes well over one hour.



# Summary

- Uniform monosized (1  $\mu\text{m}$ ) superparamagnetic beads bind protein on bead surface
  - Fast interaction
  - No target size limit
  - Secondary applications
  - Reproducibility
  - Easy handling
- Highly stable
- Competitor study show:
  - Highly competitive capacity per  $\mu\text{l}$  (list price)

# お問い合わせ



Dynabeadsについてご興味がありましたら、株式会社ベリタスの技術営業部までご連絡ください。

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