Protein Barcoding: Multiplexed Screening for High-efficiency Pre-clinical Studies

Accelerate decisions and reduce costs with 8× the analytical power

Protein barcoding makes the pre-clinical drug development process more efficient and cost-effective through multiplexed protein screening, to accelerate the path to first in human trials.

Direct protein detection: Quantify expression and differentiate functional performance of proteins

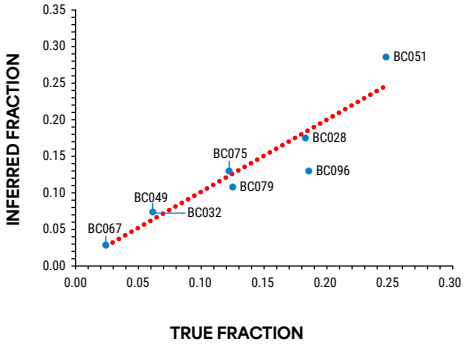
Multiplexing power: Test multiple candidates in a single model organism with **8×** the power of single-plex analysis

Cost-effectiveness: Reduce pre-clinical cost per candidate up to **71%** in mouse and **86%** in non-human primates

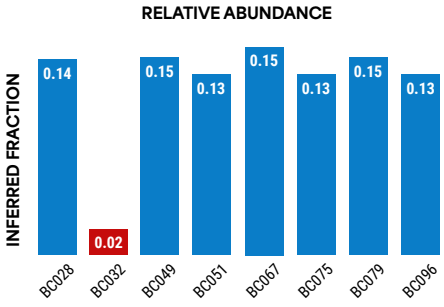
Analytical validity: Detect low-abundance proteins down to **50 fmol** and differentiate expression changes across a tenfold dynamic range

Platinum Pro®: Driving Precision in Protein Barcoding

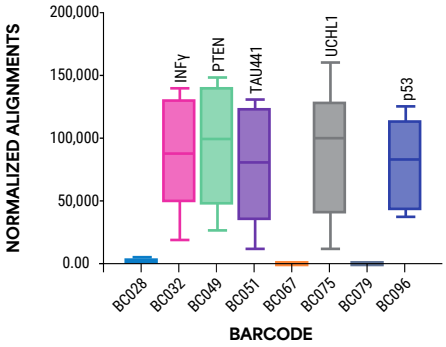
Efficient translation, extraction, and quantification in one platform



Protein barcoding offers a tenfold dynamic range and detects low-abundance variants down to 50 fmol



Lowest-abundance barcode (BC032) identified with 400 fmol input in an 8-plex mixture and 50 fmol for individual barcodes



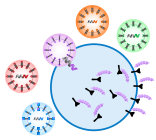
Five proteins expressed in *E. coli*, demonstrating that barcodes can accurately recover relative abundances in a mixture of full-length proteins; barcode presence did not impede expression

See full analytical validation in our recent preprint publication →

How It Works

Encode barcode into mRNA

Inject into model organism



Barcoded mRNA are translated to protein

Prepare protein from tissues

Sequence and quantify barcodes on Platinum® Pro

Screen More Candidates Per Animal and Reduce Cost Per Screen

In Vivo Studies in Mouse

Traditional workflow		
Candidate 1	Mouse 1	$500
Candidate 2	Mouse 2	$500
Candidate 3	Mouse 3	$500
Candidate 4	Mouse 4	$500
Candidate 5	Mouse 5	$500
Candidate 6	Mouse 6	$500
Candidate 7	Mouse 7	$500
Candidate 8	Mouse 8	$500
	Current reagents	$1,000
	Animal cost	$4,000
	FTE cost	$1,500
Total		**$6,575***

Platinum Pro workflow		
Candidate 1-8	Mouse 1	$500
	Quantum-Si kit(s) cost per sample	$875
	FTE cost (est)	$500
Total		**$1,875***

Next-Gen Protein Sequencing™ reduces cost by 71% and the number of animals required by a factor of 8

In Vivo Studies in NHP

Traditional workflow		
Candidate 1	Monkey 1	$25,000
Candidate 2	Monkey 2	$25,000
Candidate 3	Monkey 3	$25,000
Candidate 4	Monkey 4	$25,000
Candidate 5	Monkey 5	$25,000
Candidate 6	Monkey 6	$25,000
Candidate 7	Monkey 7	$25,000
Candidate 8	Monkey 8	$25,000
	Current reagents	$1,000
	Animal cost	$200,000
	FTE cost	$3,000
Total		**$204,000***

Platinum Pro workflow		
Candidate 1-8	Monkey 1	$25,000
	Quantum-Si kit(s) cost per sample	$875
	FTE cost (est)	$3,000
Total		**$28,875***

Next-Gen Protein Sequencing reduces cost by 86% and the number of animals required by a factor of 8

*Cost estimates are for informational purposes only and based on general assumptions. Actual savings will vary due to factors such as workflow, experiment scale, reagent costs, labor, pricing structures, equipment depreciation, and compliance requirements. Quantum-Si does not guarantee specific cost reductions or financial outcomes. Customers should conduct their own cost analysis based on their unique operations.