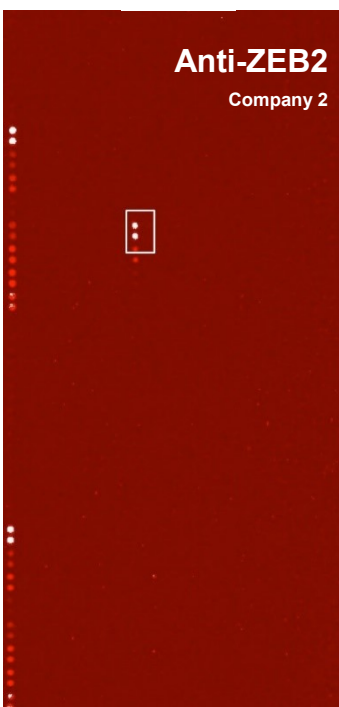


▲ OR ▼



Microarray-powered

High-Spec®

Antibody cross-reactivity testing against thousands of human proteins



A quantum leap in antibody cross-reactivity analysis offered as a service by CDI Laboratories.

Using its **HuProt™ Human Proteome Microarray**, CDI will analyze an antibody against the world's largest collection of human proteins – both native and denatured and at two working concentrations. **The data will span ~75% of the human proteome.** We'll deliver a detailed cross-reactivity summary in about 2 weeks.

The benefits of highly-characterized reagents including antibodies to users and producers are clear and cannot be overstated:

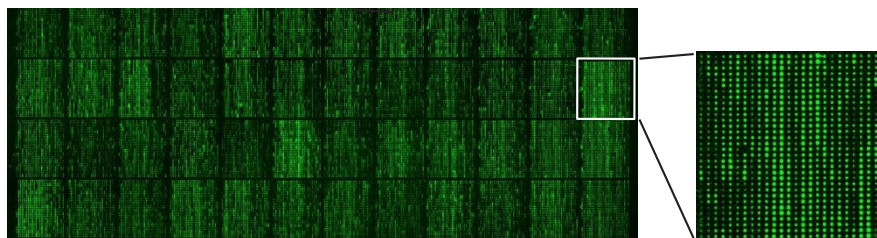
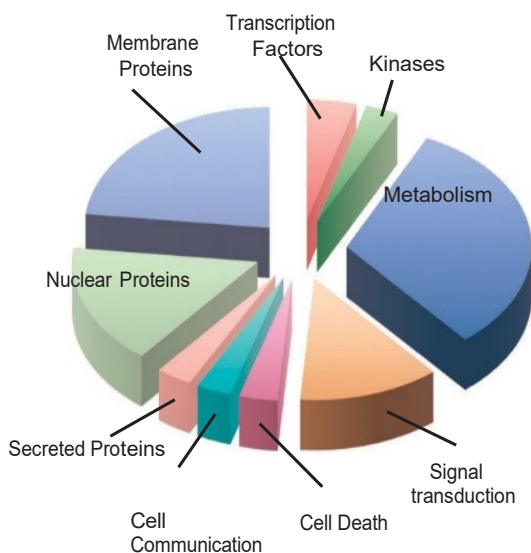
- **Persuasive proposals** → Fund regularly.
- **Robust research** → Publish faster.
- **Diagnostics / therapeutics** → Develop earlier; cut costs.
- **Competitive advantage** → Commercialize smarter.

[Consider the data >>](#)



An overview of CDI's HuProt™ human proteome microarray

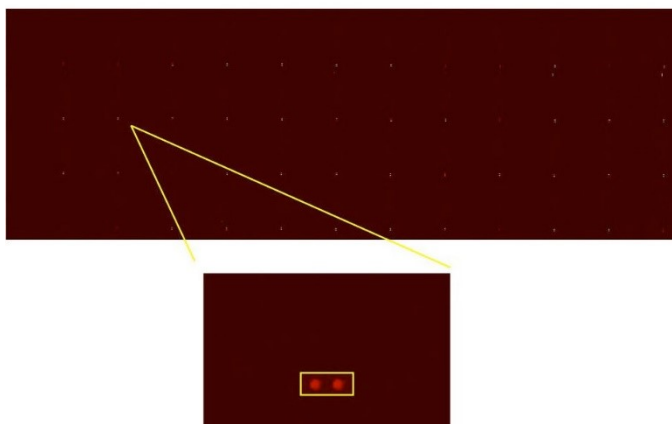
The HuProt human proteome microarray provides the largest number of unique human proteins known to be included on a single slide, allowing thousands of interactions to be profiled in high-throughput - **including antibody cross-reactivity analysis.**



The HuProt™ human proteome microarray v3.1 contains thousands of unique, individually purified human proteins along with approximately 100 mouse proteins.

The content encompasses ~75% of the human proteome; see table, left) and ~100 unique mouse gene symbols. Recombinant proteins are expressed in yeast (*S. cerevisiae*), purified and printed on glass slides in duplicate, along with control proteins.

Using HuProt™ to analyze antibody cross-reactivity

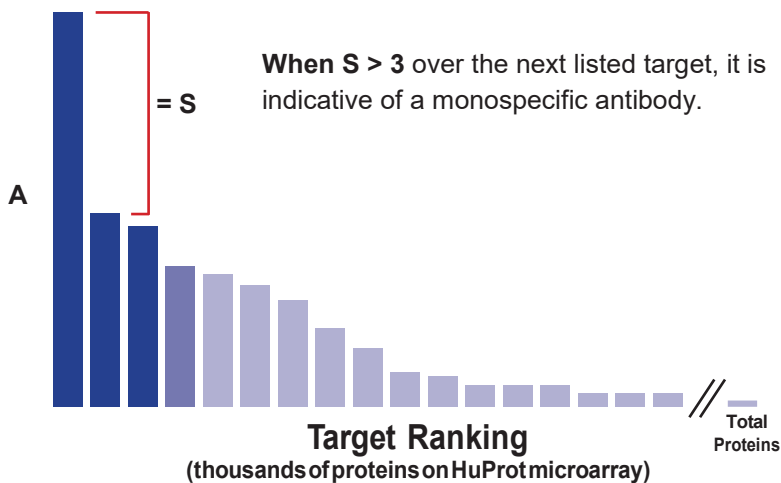


Microarray Analysis: Antibody specificity was evaluated using CDI HuProt Human Proteome Microarray (~75% of the human proteome). The microarray is incubated with the primary antibody, rinsed, incubated with a secondary antibody and subsequently analyzed with GenePix Pro Image Acquisition and Analysis Software, the benchmark tool for the acquisition and analysis of microarray images. The top 3 “hits” are identified by cross-reference to the array map which stores the exact location of each protein. If the expected target is ranked #1 and the S-Score (the difference between Rank #1 and #2) is >3, then the antibody is considered monospecific.

Statistical Analysis: Thousands of GenePix data points (from the microarray) are analyzed in terms of signal strength and ranked accordingly.

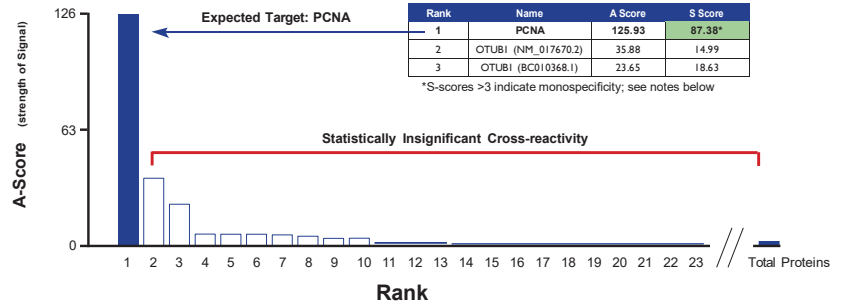
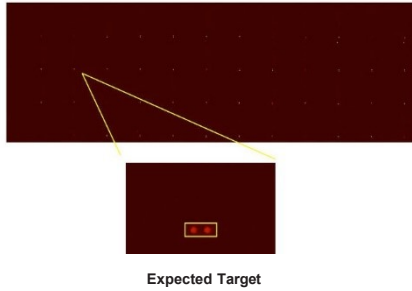
SUMMARY: The A-score indicates the number of standard deviations above background seen for the mean signal bound by the target antigen. The S-score represents the difference between the A-score of the target antigen and the next best hit on the array.

S-scores **greater than 3 standard deviations over the next listed target** are deemed statistically significant and indicate **highly specific antibodies.**

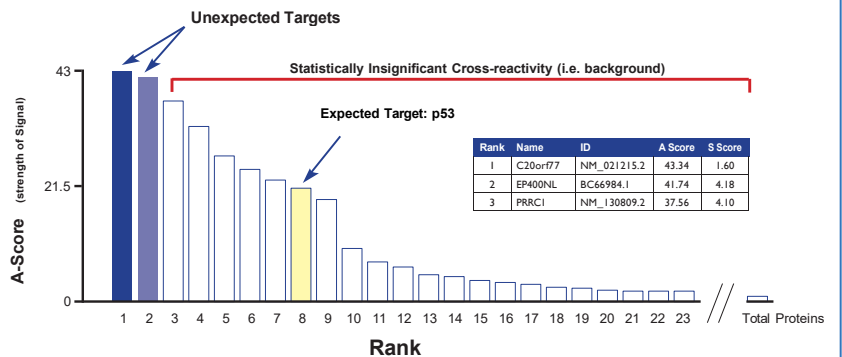
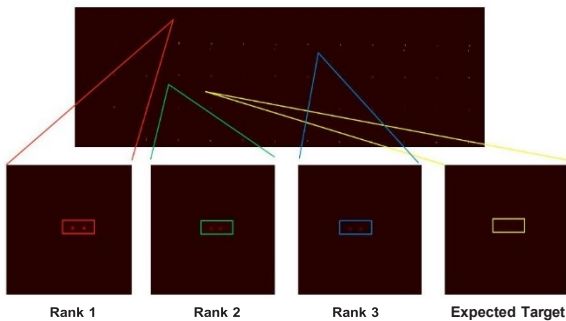


Consider the data generated using commercially available antibodies:

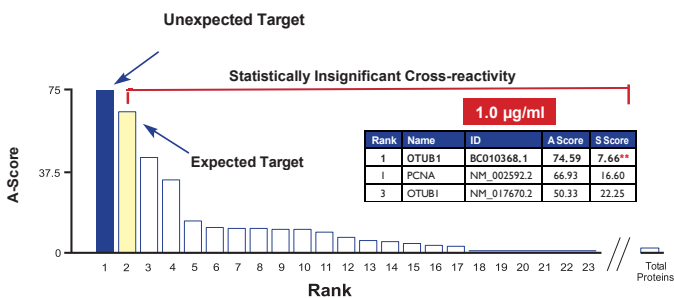
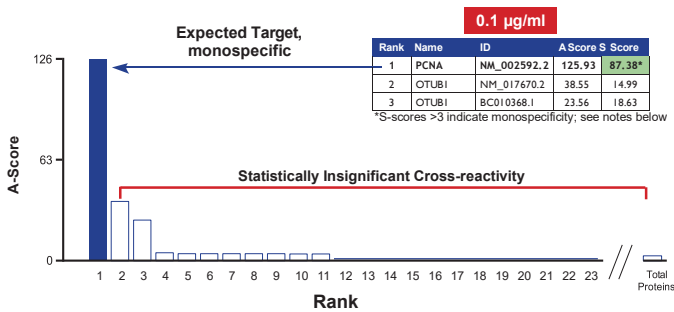
A monospecific, high-quality PCNA antibody



A cross-reactive, low-quality p53 antibody

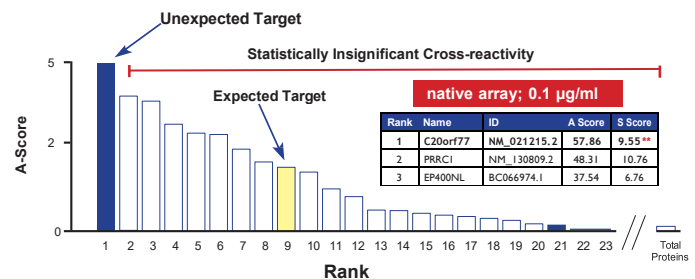
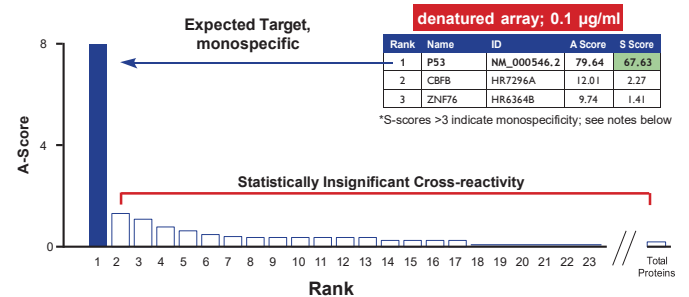


Ab Cross-reactivity vs. working concentration (Anti-PCNA)



**Note: At 1 µg/ml, this antibody is considered monospecific for OTUB1.

Ab Cross-reactivity: native vs. denatured proteins (Anti-p53)



**Note: On the native array, this antibody is considered monospecific for C20orf77.

See more data summaries using other commercial antibodies:



Cross-reactivity analysis of other commercial antibodies: summarized data



Company	Intended Target (IT)	Dilution µg/ml	Top Target	A Score	S Score*	Specific for IT	Array ⁺	White Paper**	Notes
ELISA Confirmation									
Company C	BCL2	0.1	AMPH	28.94	1.75			p. 5	ELISA confirmation of HuProt™ analysis; antibody is non-specific for the intended target (IT)
Company A	USF2	1.0	USF2	31.26	0.65	NO	N		
Company G	KCNP2	1.0	RBKS	56.58	0.00			p. 6	
Native Microarray									
Company C	PTEN	1.0	PTEN	69.31	1.60	NO	N	p. 9	head-to-head comparison; Company B PTEN Ab is also monospecific on denatured array (see below)
Company B				85.10	60.06	YES			
Company D	PTEN	0.1	ZNF175	6.53	0.27	NO	N	p. 10	monospecific for unintended target at higher concentration
		1.0	FIP1L1	24.45	12.29				
Company E	PCNA	0.1	PCNA	111.70	86.83	YES	N	p. 11-12	loss of monospecificity at higher concentration; same results on denatured array (see below)
		1.0	GORASPI	26.76	0.31	NO			
Company C	PCNA	0.1	PCNA	125.93	87.38	YES	N	p. 11-12	monospecific for unintended target at higher concentration
		1.0	OTUB1	74.59	7.66	NO			
Company D	PCNA	0.1	FMN1	8.39	0.76	NO	N	p. 13	no specificity at either concentration
		1.0	ROPN1B	9.51	0.49				
Company C	TP53	0.1	C20orf77	7.22	2.03	NO	N	p. 14-15	no specificity at either concentration
		1.0		43.34	1.60				
Company F	TP53	0.1	C20orf77	57.86	9.55	NO	N	p. 14-15	monospecific for unintended target at lower concentration; monospecific for intended target at higher concentration
		1.0	TP53	130.54	127.06	YES			
Denatured Microarray									
Company C	PTEN	0.1	PTEN	29.83	0.00	NO	D	p. 16	no specificity on either array
		1.0	NOL3	29.91	0.00				
Company B	PTEN	0.1	PTEN	52.50	22.08	YES	D	p. 17	high quality antibody as demonstrated on both native and denatured arrays
		1.0		44.81	9.00				
Company D	PTEN	0.1	ZNF490	4.12	0.77	NO	D	p. 18	monospecific for unintended target at lower concentration
		1.0	FAM150A	55.15	50.02				
Company C	PCNA	0.1	PCNA	125.93	86.38	YES	D	p. 19	high quality antibody as demonstrated on denatured array; use with caution on proteins (see above)
		1.0		75.21	50.91				
Company E	PCNA	0.1	PCNA	72.70	29.41	YES	D	p. 20	loss of monospecificity at higher concentration; same results on native array (see above)
		1.0	ZNF639	29.46	0.00	NO			
Company C	TP53	0.1	FAM114A1	21.38	1.86	NO	D	p. 21	no specificity on either array
		1.0	EP400NL	32.66	2.71				
Company F	TP53	0.1	TP53	79.64	67.63	YES	D	p. 22	high quality antibody as demonstrated on denatured array; use with caution on proteins (see above)
		1.0		77.58	71.45				

*S Scores greater than or equal to 3.00 indicate a monospecific antibody and are indicated in **bold**.
Note that 4 antibodies demonstrate monospecificity for UNINTENDED TARGETS under certain conditions.

⁺Arrays: N (native) D (Denatured)

**Download the new white paper: "[Antibody Cross-Reactivity Testing Using the HuProt™ Human Proteome Microarray](#)"



Give us a call for more information, to get a quote or to begin a project.
www.cdi-lab.com

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