

The Road Trip from Biological Scarcity to Differentiation Scarcity

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For decades, the pharmaceutical industry operated under the premise of biological scarcity. We asked, "Can we find a target?" and "Will it work?". Discovery risk was the definitive bottleneck. In late 2026, we find ourselves in an era of biological abundance driven by technical innovation in modalities...

Modality	Estimated Addressable Proteome (%)	Key Biological Constraints
Small Molecule Inhibitors	15% – 25%	Requires deep, functional binding pockets; limited to ~6.8% of intracellular space.
Antibodies (Biologics)	15% – 25%	Restricted to extracellular and cell-surface targets; cannot cross cell membranes (historical).
Targeted Protein Degradation (PROTACs/Glues)	~80% – 100%	Addresses multiple amino acid targets within proteins; eliminates scaffolding and non-enzymatic functions.
Oligonucleotides (siRNA/ASO)	~80% – 100%	Functions before protein synthesis by targeting mRNA; limited primarily by tissue delivery.
Peptides (Macrocyclic)	~80%	Addressing protein-protein interactions (PPIs) and previously undruggable binding sites.
Gene/Cell Therapy	Long-term Potential	Historically focused on rare genetic diseases; expanding into chronic populations like Type 1 Diabetes.

It is estimated that FDA approved drugs target just 667 proteins (~3.5% of a druggable proteome estimated at 11,400 proteins). There is lots of opportunity for new modalities!