



Empowering drug discovery with high-performance microarray platforms

Microarrays, whether DNA, RNA, or protein-based, allow researchers to profile thousands of genes, transcripts, or proteins in parallel. This helps identify disease-associated molecular signatures, pathway activations, and novel therapeutic targets long before a drug candidate is designed.

Focused microarrays can then be used in monitoring efficacy of drug candidates as well as indicate potential off-target complications.

1. The role of microarrays in modern drug discovery

Drug discovery is increasingly driven by high-throughput, data-rich platforms that allow researchers to rapidly explore biological systems, identify drug targets, and evaluate molecular interactions.

Microarrays offer a powerful, miniaturized solution that enables:

- Parallel screening of thousands of compounds, targets, or interactions
- Identification of drug binding events, off-target effects, and toxicity markers
- Autoimmune and infectious disease diagnostics
- Accelerated workflows from discovery to preclinical validation

To translate these benefits into actionable results, microarrays used in drug discovery must be designed with precision, reproducibility, and scalability – meeting the exacting standards of pharmaceutical R&D.

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2. Precision engineering for molecular discovery



Multiplexed screening accuracy

Drug discovery microarrays demand exceptional control over:

- Spot density and spatial resolution
- Ligand or protein immobilization techniques
- Assay sensitivity to weak binding events

Using SCHOTT MINIFAB's high-precision, non-contact microarray printing technologies, each interaction site is:

- Precisely deposited
- Chemically activated to retain biological activity
- Positioned to optimize kinetic readouts

This supports reliable high-throughput screening (HTS) for protein-protein, small molecule-protein, or antibody-antigen interactions at picoliter volumes of dispensed reagents.

3. Quality: Ensuring confidence in early stage results



Reproducibility drives R&D success

For pharmaceutical teams, false positives or negatives in the discovery stage can lead to costly delays. SCHOTT MINIFAB ensures data confidence through:

- ISO13485-grade process control and documentation
- Batch-to-batch consistency in reagent application and array performance
- Post-print QC and custom assay verification workflows



Biocompatible surface chemistry

Drug candidates are often sensitive to material interactions. SCHOTT MINIFAB supports hybrid platforms using:

- Thermoplastics, coated glass, or customized polymeric substrates
- Surface modifications tailored to molecular assays
- Conditions that preserve bioactivity over time and storage

This guarantees minimal signal interference and assay degradation, even during extended compound library screens.

4. High-throughput capability for **scalable** discovery pipelines



From screening to validation, faster

In early drug discovery, **time is critical**. Microarrays enable compound libraries or target panels to be evaluated quickly and reproducibly.

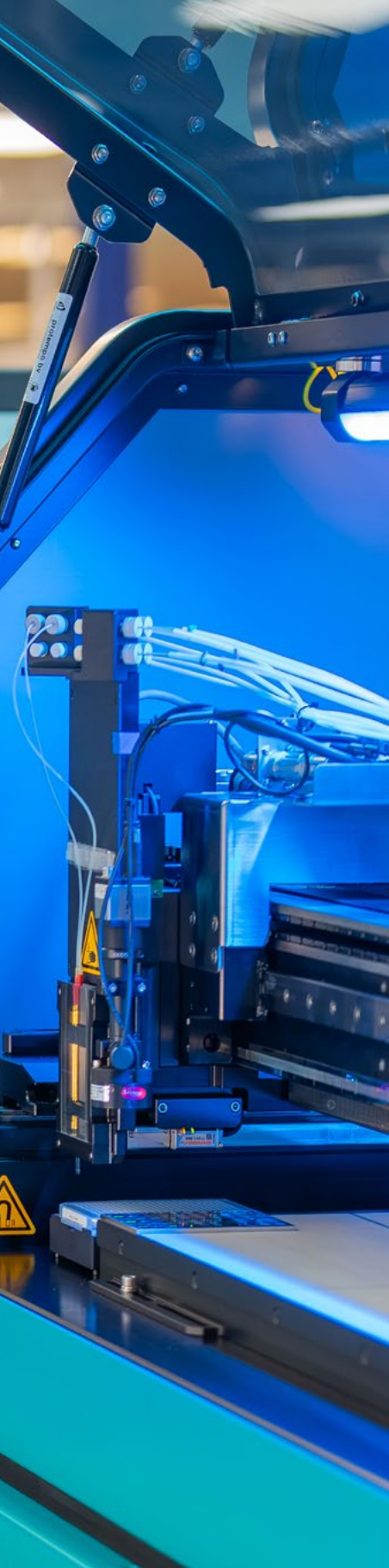
SCHOTT MINIFAB's platform supports:

- Custom panel printing (up to thousands of features)
- Format flexibility: slides, plates, cartridges
- Automated production capable of high daily throughput

Coupled with built-in scalability and design-for-manufacture (DfM) practices, the same microarray format used in discovery can often scale into translational or companion diagnostic development.



SCHOTT MINIFAB's high-precision, non-contact microarray printing fleet



5. Drug discovery applications enabled by microarrays

- **Target validation:** Confirming interactions between drug candidates and cellular proteins
- **Mechanism of action studies:** Identifying signaling pathways affected by a compound
- **ADME/Tox profiling:** Screening for off-target binding and potential toxicity
- **Biomarker discovery:** Linking compound effects to expression profiles or immune responses
- **Antibody and small molecule screening:** Rapid affinity comparisons across thousands of candidates

Each of these applications requires platforms that deliver **precision control, quality manufacturing, and high-throughput** – core strengths of SCHOTT MINIFAB.

SCHOTT MINIFAB's high-precision, non-contact microarray printing fleet

6. Conclusion:

Building the future of discovery with confidence

The speed and scale required in drug discovery demand more than innovative biology – they require robust, industrialized assay platforms.

SCHOTT MINIFAB enables pharma and biotech partners to accelerate discovery through:

- ✓ Precision spotting and surface engineering for molecular assays
- ✓ Consistent, quality-controlled production
- ✓ High-throughput scalability for evolving R&D needs
- ✓ A collaborative, scientist-to-scientist development approach

“Drug discovery moves fast. Our microarrays are built to keep up — with precision, quality, and trust.”

Discover more SCHOTT® Microarray applications

No matter your microarray application, we've likely encountered something similar and can assist you on your journey. With our experience and expertise, we will help guide you to success.

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