SmartBioSurface® Slides

Where efficient cell adhesion meets easy isolation

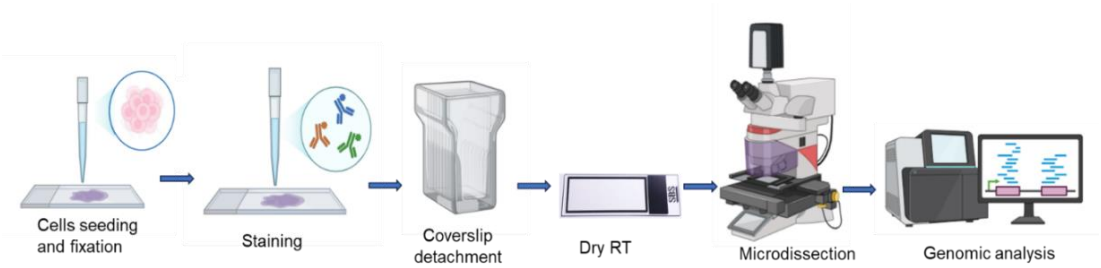
Single-Cell Laser Capture Microdissection of Non-Adherent Cells

Single-cell Laser Capture Microdissection (LCM) enables high-resolution molecular profiling but requires **efficient immobilization and release**.

- **Non-adherent cells** (PBMCs, suspension cells, and rare cell populations) are **difficult to immobilize** on standard LCM slides, and cytospin leads to low recovery and cell damage
- **SmartBioSurface® slides,** thanks to nanostructured TiO_2 coating, **promote cell adhesion,** preserve **morphology**, enable **laser microdissection,** and **downstream molecular analysis**

SmartBioSurface® slides. Left Image: SmartBioSurface® slides in a different format. Right Image: Atomic Force Microscopy (AFM) of the nanocoating (50 nm thickness)

LCM Workflow on SmartBioSurface® Slides

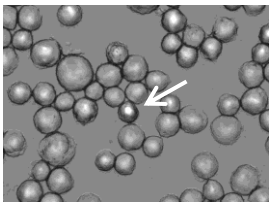
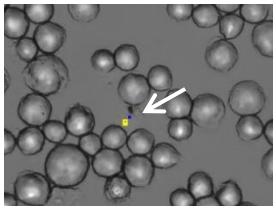
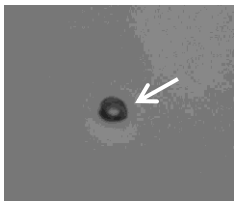


Schematic description of the analytical workflow starting from cell seeding on SmartBioSurface® slides to single-cell genomic analysis.

- **Cell seeding** – Non-adherent living cells are directly pipetted onto the slide and spontaneously adhere to the nanostructured surface
- **Staining** – Samples can be processed with brightfield or immunofluorescence staining for clear cell identification
- **LCM isolation** – Target cells are precisely identified and isolated using laser microdissection
- **Molecular analysis** – Recovered single cells are compatible with WGA, NGS library preparation, and CNV analysis

Easy and Efficient Laser Microdissection

SmartBioSurface® slides enable **clear target identification** and clean **laser-based release** with LCM systems, allowing **efficient single-cell recovery**.

Step 1 Target Identification	Step 2 Post-Dissection	Step 3 Capture Confirmation
		
Target cell identified on SmartBioSurface® slide	*Excision Site*	*Cell recovered in the collection cap*

Target cell identification, laser microdissection, and successful cell capture in the collection cap: the white arrow indicates the target undergoing microdissection (Zeiss PALM MicroBeam LCM).

SmartBioSurface® Slides Key Advantages for LCM Applications

- **Ready-to-use** slides with no specialized preparation
- Efficient **adhesion** of non-adherent and rare cells
- Compatible with **brightfield** and **immunofluorescence** staining
- 100% efficiency of single-cell **microdissection**
- Compatible with **downstream molecular analysis**

References

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