LIBAC — Basic–Clinical Research Laboratory (UANL School of Medicine)
Lead: Dr. Hugo Gallardo-Blanco
Focus: Targeted Nanomedicine & Oncogenic Protein Interference (HER2+ breast cancer; Myc/Max programs)

Research Rationale

LIBAC develops targeted nanomedicine and molecular inhibition strategies to address key bottlenecks in cancer biology: intracellular access, mechanistic specificity, and translational interpretability. We integrate functional biomaterials, delivery engineering, and pathway-level readouts to design interventions that can be tested rigorously in cell models and aligned with clinically meaningful phenotypes.

Two Anchoring Programs

1. **HER2+ breast cancer:** receptor-guided targeting and intracellular routing to enable selective modulation.
2. **Myc/Max programs:** competitive blockade and degradation-inspired concepts to modulate oncogenic transcriptional circuitry.

Collaboration Formats (High-Impact)

- **Mechanism-first validation:** specialized assays/imaging/omics + construct co-design + testable mechanistic endpoints.
- **Targeted delivery + functional readouts:** uptake/trafficking linked to pathway response after intervention.
- **Translational framing:** connect molecular effects to tumor-relevant phenotypes or clinically anchored datasets.
- **Manuscripts & grant-ready modules:** workstreams that map cleanly onto Specific Aims.

What We Can Contribute Quickly

- Aim-structured study logic connecting construct design → mechanism → measurable outcomes.
- Mechanistic figure concepts and collaboration-ready drafts (rationale + endpoint strategy).
- Rigorous interpretation for cell-based evaluation of functional biomaterials/ inhibitory constructs.
- Pathway-level prioritization to reduce experimental uncertainty.

Selected Publications (with DOI)

- Cancers (2025) — DOI: 10.3390/cancers17060982
- Polymers (2025) — DOI: 10.3390/polym17101335
- Springer Proc. in Materials (2025) — DOI: 10.1007/978-3-031-99987-1_25
- Springer Proc. in Materials (2025) — DOI: 10.1007/978-3-031-99987-1_2
- Springer Proc. in Materials (2025) — DOI: 10.1007/978-3-031-99987-1_1

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