Pilot Project 4: IMMUNE AND MICROBIAL SIGNATURES FOR TREATMENT RESPONSE IN HISPANICS WITH CERVICAL CANCER
Co-leaders: Drs. Lauren Colbert (MDACC) and Stephanie M. Dorta-Estremera (UPR)

The overall goal of the project is to develop the first multi-omic profile of the cervicovaginal microenvironment in Hispanics with cervical cancer.

Inputs	Specific Aims & planned initiatives			Outcomes -- Impact	
	Aims	***Activities***	***Outputs***	***Short-term/ Intermediate***	***Long-term***
• UPR-MSC • MDACC • UPRCCC • UPR and San Juan city clinics (San Juan Metropolitan area) • LBJ/ Harris Health Clinic, the Houston Area Locations and MDACC network sites • Universidad Ana G. Méndez (Dr. Méndez Lab) • PRIME-TR/ Microbiome core • UPR/MADCC Cores • IAC • PSC	1. Identify differences in Lactobacillus diversity associated with cervical cancer chemoradiation response, specifically in Hispanics. 2. Determine whether functional immune profiles are associated with Lactobacillus species and treatment response in Hispanics.	• Recruitment of 60 new cancer patients at MDACC and UPR-MSC to collect samples pre- and post-treatment. • Hiring of UPR-MSC research assistant • IRB approval for cervical cytobrush collection in cancer patients at UPR-MSC and the UPRCCC. • Student training in bioinformatics and microbiome. • Student training in immune analysis. **Aim 1** 1. Cervical isohelix swabs will be collected for 16S rRNA gene sequencing. 2. Compare Lactobacillus species between patients with HSIL and cancer by using data previously collected. **Aim 2** 3. Cervical cytobrushes will be collected for identification of phenotypic and functional changes in T cells and myeloid cells by flow cytometry. 4. Cervical lavages will be analyzed by Luminex assay to quantify pro- and anti-inflammatory cytokines.	• # of patients recruited. • # of hired personnel. • IRB approvals **AIM 1** • # of samples collected. • Identification of L. iners in samples • Manuscript comparing the cervicovaginal microbiota between dysplasia and cancer Hispanic patients **AIM 2** • # of samples collected. • Phenotypic and functional changes in T cells and myeloid cells • Quantification of pro- and anti-inflammatory cytokines • Manuscript on immune and microbiota changes in Hispanic cervical cancer patients during chemoradiation. *Standardized outputs* • # publications • # high-impact journals • # grants and supplements • # poster presentations • # students trained • # collaborations established • # patents	• Compare the cervicovaginal microbiota between dysplasia and cancer Hispanic patients. • Identify the presence of L. iners in the cervix associated with poor treatment response in Hispanics. • Analyze the cellular and cytokine profile in the cervicovaginal microenvironment associated with chemoradiation response in Hispanics. • Students at UPR-MSC and MDACC will develop skills in bioinformatics, microbiome, immunology, and cancer biology.	• Identification of prognostic markers and therapeutic targets to improve patient survival in Hispanics with cervical cancer.
Process Evaluation				**Outcome Evaluation**	