

136

Advancing preclinical models for head and neck cancers: Comparative analysis of syngeneic murine heterotopic and orthotopic tumor microenvironments and development of an orthotopic tumor resection model*

Gemalene Sunga¹, Andrea Molina², Neeraja Dharmaraj², Ratna Veeramachaneni³, Roberto Rangel³, Andrew Sikora³ and Simon Young²

¹The University of Texas MD Anderson Cancer Center UTHealth Houston Graduate School of Biomedical Sciences; ²The University of Texas Health Science Center at Houston, School of Dentistry and ³University of Texas Anderson Cancer Center

OBJECTIVES/GOALS: Clinical relevance of preclinical animal models is commonly in question. Herein, we investigated locoregional tumor immune microenvironment (TIME) differences in tumor-bearing murine oral cancer models, unresponsive to traditional immunotherapy, and also developed an oral tumor resection model to ultimately enhance translational relevance. **METHODS/STUDY POPULATION:** Here, we utilized carcinogen-induced, HPV-negative preclinical oral cancer models. For TIME studies, ROC1 cells were maintained as published. ROC1 tumors were established in the murine flank and oral cavity of wildtype C57Bl/6 mice, and tumor growth kinetics were assessed at each site. At distinct stages of tumor growth, tumors were harvested, as well as their respective corresponding inguinal and cervical tumor-draining lymph nodes (tdLNs). Multiparameter 28-marker spectral flow cytometry was performed to analyze immune cell populations at each site. For tumor resection studies, MOC2 tumors were similarly maintained and established in the oral cavity. MOC2 tumors were accessed via midline trans-cervical incisions. Upon tumor excision, wounds were closed with multiple interrupted Vicryl sutures. **RESULTS/ANTICIPATED RESULTS:** We anticipated no differences between heterotopic and orthotopic tumor sites. Both sites displayed an initial period of delayed ROC1 tumor growth followed by rapid progression. Comprehensive analyses revealed low T cell infiltration overall and increases in select myeloid cells (i.e., macrophages and dendritic cells) over time in both models. Other immune cell types, however, generally increased over time in the flank. Differences between corresponding tdLNs further indicate deviating changes in immunosuppressive phenotypes (i.e., regulatory T cells and macrophages) and immune checkpoint marker expression. Additionally, MOC2 oral tumors were successfully resected with no visible remaining tumor. No subsequent healing complications were observed, and tumor recurrence occurred within 1 week post-surgery. **DISCUSSION/SIGNIFICANCE OF IMPACT:** Tissue-specific TIME and tdLN differences may impact antitumor treatment and response. Ability to resect orthotopic tumors allows for modeling of standard-of-care treatment for oral cancer. These studies can enable tailoring of therapeutic strategies and provide insight into model selection and data interpretation from translational studies.

Diversity, Equity, Inclusion and Accessibility

137

Disparities in cervical cancer prevention among non-Hispanic Black and Hispanic women

Deborah Smith, Cory Coehoorn and Jerry W. McLarty
Louisiana State University Health Science Shreveport

OBJECTIVES/GOALS: This study aim to identify cervical cancer prevention barriers and facilitators, assess the associations between

social determinants of health factors and cervical cancer prevention, and examine the association between levels of health literacy and willingness to undertake HPV vaccine and cervical cancer screening among Black and Hispanic women. **METHODS/STUDY POPULATION:** To achieve Aim 1, we will conduct a quantitative survey on barriers and facilitators to cancer prevention among non-Hispanic Black and Hispanic women. For Aim 2, we will assess the relationship between Social Determinants of Health and HPV vaccination/cervical cancer screening using the AHC Health-Related Social Needs Screening Tool. For Aim 3, health literacy will be measured using the SAHL-S&E test and its association with willingness to vaccinate or cervical cancer screening. We will analyze the results using chi-square and logistic regression models. Participants will be recruited through multiple methods. We will recruit 250 individuals who were assigned female at birth and identify as non-Hispanic Black or Hispanic, aged 18–26 years, from Caddo and Bossier Parishes. **RESULTS/ANTICIPATED RESULTS:** We expect to identify several barriers and facilitators to cervical cancer prevention among non-Hispanic Black and Hispanic women, including factors like access to care, cultural beliefs, and knowledge gaps. Social determinants of health (SDOH), such as income, education, and healthcare access, will likely show a strong association with lower HPV vaccination, Pap smear, and HPV screening rates. Additionally, we anticipate that lower health literacy will correlate with reduced willingness to vaccinate or screen for HPV. These findings can bridge the gap between research and practical health applications by guiding the design of community-based behavioral interventions that enhance cervical cancer prevention among minority populations. **DISCUSSION/SIGNIFICANCE OF IMPACT:** This research is the first to assess how SDOH factors impact cervical cancer prevention among Blacks and Hispanic women in North Louisiana while also exploring the role of health literacy in HPV vaccination and screening. Findings will drive practical interventions to reduce disparities and improve outcomes.

138

Association of gestational age and neurodevelopment delays in childrens exposed to NICU

Keimaris Colón Díaz¹, Polaris González², Lourdes García Frago³, Claudia Amaya Ardila⁴, Carmen Buxo⁵ and Karen Martínez²

¹University of Puerto Rico Science Medical Campus; ²University of Puerto Rico Science Medical Campus, Department of Psychiatry; ³University of Puerto Rico Science Medical Campus, Department of Pediatrics; ⁴University of Puerto Rico Science Medical Campus, Department of Biostatistic and Epidemiology and ⁵University of Puerto Rico Science Medical Campus, Dental Department

OBJECTIVES/GOALS: Explore the association of gestational age of LPIs and neurodevelopment delay in children exposed to the neonatal intensive care unit (NICU). Compare between groups if exposure to NICU affects neurodevelopment in children who were born between 34 and 37 weeks of gestation. **METHODS/STUDY POPULATION:** This is a cross-sectional study design to study the association of gestational age and neurodevelopmental delays in a birth cohort in Puerto Rico of children exposed to the NICU. Their neurodevelopment will be measured with the Bayley III. Statistical analysis will be performed using IBM SPSS Statistics 27.0. Descriptive statistics will be used, and normality distributions among all continuous variables, frequency distribution for categorical variables. We will recruit 30 infants between 18–24 months of age