OCHSNER-UNO COLLABORATIVE UNDERGRADUATE RESEARCH EXPERIENCE (CURE) 2024 PROJECTS

1)	ITR Transplant Lab	Ari Cohen, MD, Paul Thevenot, PhD and Kelley Núñez, PhD Location: The Gayle and Tom Benson Cancer Center at Ochsner Medical Center	1 UNO student	**Project title:** Biomarker response versus imaging response as the superior measure of durable treatment response in AFP+ hepatocellular carcinoma **Description:** More than 50% of newly diagnoses early-stage hepatocellular carcinoma (HCC) express abnormal levels of the biomarker alpha fetoprotein (AFP). Early-stage HCC is clinically managed with tumor-directed therapy as a bridge to surgical therapy. The response to treatment is characterized by a loss of tumor vascularity as assessed by CT/MRI. Unfortunately, a complete imaging response rarely correlates with complete tumor necrosis. AFP biomarker response has been suggested as a more sensitive measure of tumor response in HCC that express elevated levels at diagnosis. This study will examine the correlation between biomarker response versus imaging response in a 200-patient cohort and retrospectively analyze whether a combination of approaches would yield a more sensitive assessment of tumor response and duration of response.
2)	ITR Cancer Lab (shares space with Rheumatology lab)	Li Li, MD, PhD and Grace A. Maresh, PhD Location: TBD – Ochsner Health facility in New Orleans	1 UNO student	**Project title:** Effect of chemo- and immuno-therapies on the expression of marker proteins in human urological cancers grown in mice **Description:** Kidney or bladder cancers derived from patients are grown in mice and subjected to various chemo- and immuno-therapies. Once we have the results of how these tumors grew and responded to treatment in the mouse, we need to look at specific cancer-related molecules in the preserved tissues. The student will learn to cut thin sections from paraffin blocks of treated and untreated tumor and organ tissues. The sections will be applied to glass slides and stained to look at general histology and identify tumor areas. The student will then learn to stain the slides with antibodies against various marker proteins (immunohistochemistry) which will give information on the growth and location of the tumor and

				metastases. They will also learn to take micrographs of their results. These experiments require time and practice to learn but will result in very useful data when done properly. It would make an excellent summer project for a motivated undergraduate student.
3)	ITR Rheumatology Lab (shares space with Cancer lab)	Xin Zhang, MD, PhD <u>Location:</u> TBD – Ochsner Health facility in New Orleans	1 UNO student	**Project title:** Obesity in SLE: from Animal Model to Clinical Evidence **Description:** Systemic Lupus Erythematosus (SLE or lupus) is a chronic autoimmune disease characterized by persistent inflammation and production of autoantibodies which attack host own cells leading to multiple organs damage, such as skin, joints, kidney, etc. SLE is most often diagnosed in young women, especially Africa American. Because of the clinical heterogeneity of the disease and the complexity of its immune mechanisms, currently there is no curative therapy available for SLE. The onset and progression of SLE is not only attributed to genetic susceptibilities but also environmental factors including diet/obesity. Our recent data in lupus prone mouse model showed that high fat diet-induced obesity exacerbates lupus features and autoimmunity with active germinal center, accumulated Tfh cells, and imbalance Tfh and Treg cells, suggesting a unique role of obesity in lupus pathogenesis. Although mouse model provides significant insights into the comprehension of the SLE pathogenesis and the development of novel treatment, the mouse model can't fully reproduce human SLE due to their genetical, anatomical and immunological differences. In this study, we will further investigate the link between obesity and SLE, by examining autoimmunity and proinflammatory status in comparing obese and non-obese lupus patients. The student in CURE program will learn to isolate mononuclear cells from peripheral blood, detecting inflammatory cytokines in serum by ELISA, and examine the circulating immune cell populations in SLE patients by Flow Cytometry. The student will learn to organize data using excel, make graphs/table, and perform statistical analysis using GraphPad Prism software. The student will discuss his/her results regularly with staff scientist and attend Rheumatology Research Meeting. The student will

				take a tour in clinical Immunology Lab and Chemistry Lab for his/her career path. The student will study literatures related to this project and make presentation at the end of the program.
4)	Hospital Medicine	Kevin Conrad, MD <u>Location:</u> TBD – Ochsner Health Medical Center	1 UNO student	**Project title:** Mortality among hospitalized Medicare patients discharged to in-patient post-acute care-services **Description:** In recent years, the benefits of costly post-acute acute services have been debated. This retrospective study within hospital medicine will look at all-cause mortality among Medicare patients discharged to skilled nursing facilities and rehabilitation units within the New Orleans area. This will require chart review within the EPIC electronic medical record. Correlations will be examined including discharge diagnosis, nursing home Medicare STAR rating and age at time of discharge. The participating C.U.R.E. student will get an introduction to the chart review process as well as an understanding of the quality of post-acute care services.