As health care transitions toward an era of “precision” diagnostics and treatments, amazing advances in molecular and cell biology from the past decade are dramatically changing our understanding of factors mediating gastrointestinal health and disease. Care of patients has become increasingly guided by molecular characterization of disease, allowing care providers to more accurately diagnose GI illnesses and determine prognoses and more effectively predict the risk of disease progression. While many diseases may appear clinically similar, they often differ at the molecular level. These molecular features are showing great promise to more accurately predict whether diseases will respond to specific therapies than can currently be predicted using clinical criteria alone. These newfound subtyping abilities is changing and will change how we treat patients by identifying the treatments that have the highest likelihood of success for a specific patient.

Our ability to transfer these advances in our understanding of molecular pathology in digestive diseases to the clinic has historically been impeded by a lack of high-quality, clinically-annotated patient samples. To address this critical need in translational research, the UW GI Division, Dr. John Inadomi, and Dr. William Grady, Professor of Medicine at UW and Member of the Fred Hutchinson Cancer Research Center, established the Gastrointestinal Biorepository and Research Registries over ten years ago.

The Biorepository and Subject Registries anchor a translational research core that actively recruits for investigator-initiated, federally-funded and industry-sponsored studies. Biospecimens are married to patient data from subjects who have agreed to allow interrogation of their longitudinal health record and to the study of their donated biosamples in the name of advancing science and ultimately improving patient care. Biospecimens and data collected with cutting-edge devices are processed using strict, state-of-the-art protocols ensuring their long term viability and future utility in discovery science. In addition, study subjects have also agreed to be contacted for new study opportunities, which accelerates the pace of clinical and translational research.

Central features of the GI Biorepository fabric include the rich clinical annotation of the samples in the repository, the high-quality of the samples resulting from the stringent collection protocols used, and the ability to track subjects longitudinally in time and determine the natural history of the relevant diseases in the subjects. In addition, the GI biorepository includes a living biobank of tissues that features intestinal organoid cultures and is a cutting edge resource that allows the investigation of a patient’s response to novel therapies in the lab. These elements are essential for high-quality translational research and are allowing investigators in the UW GI research community to readily carry-out these high-impact studies.

The Registries serve as a means to facilitate the study of GI diseases. The registries have created a resource of consented subjects who have agreed to participate in research and who have granted permission to access their health information in the medical record and to use their discarded, archived tissue samples for studies. They have also agreed to be contacted about emerging research opportunities, removing a major barrier to clinical and translational research that currently exists.

The GI biorepository and GI Registry are resources that facilitate and accelerate the study of GI disease and health. The finely annotated samples in the UW biorepository link demographic information to up-to-date clinical data, which includes exhaustive treatment information, response to treatment data, and molecular information about the subject’s disease. This ‘big’ data is critical for high-impact translational clinical research and basic science research that will lead to novel therapies for people with GI disease.

For more information regarding the Biorepository and Registries, please contact Wynn Burke.

wburke@medicine.washington.edu  gicares.org