

NCI has initiated a number of new initiatives that are focused on the development of methods to develop and robustly validate current and next generation of imaging platforms. Over the last decade while there has been significant development of a range of imaging platforms and methods that are designed to address the cancer problem, such as screening of early cancer; cancer diagnosis, characterization, prediction and measurement of response to therapy, and image guided therapy including drug delivery systems. However as imaging methodologies move towards multi-modality and molecular imaging platforms, coupled with recent advances in nano-carriers and molecular probes, the ability to robustly validate these technologies, and perform multi-parametric and quantitative measurements, is becoming increasingly complex. In addition the next generation of imaging technologies often involves imaging at resolution scales from the cellular to the organ level, where traditional pathological validation strategies are often limited. Thus the development and in particular the robust validation of these technologies, including clinical decision making, as required in the new era of personalized medicine, poses significant barriers for FDA approval , CMS reimbursement and ultimately their commercial dissemination as enabling tools for pre clinical and clinical research in cancer.

NCI therefore has initiated several new initiatives that specifically address support for translational research that includes a means to broadly engage the research and industry community to develop both public resources and consensus methods to validate these emerging imaging platforms. The new initiatives will be of interest to medical physicists and computer scientists involved in imaging research and clinical practice.

Learning Objective:

1. Understand the opportunity for research support for translational research at NCI
2. Understand the importance of development a consensus on how to validate emerging imaging technologies.