Mei Xiao, J Mol Genet Med 2014, 8:3
http://dx.doi.org/10.4172/1747-0862.S1.002

OMICS Group Conferences
Accelerating Scientific Discovery

2nd International Conference on
Genomics & Pharmacogenomics
September 08-10, 2014 DoubleTree by Hilton Hotel Raleigh-Brownstone-University, USA

# Using imaging tools to track the phenotype changes to capture potential genotype changes

**Mei Xiao**
The Jackson Laboratory, USA

Monitoring phenotype changes and linking them with potential genetic mutations has becoming an important tool for building disease models and developing biomarkers and disease diagnosis methods. Phenotypic analysis of tissue changes demands automated, high-throughput image analysis tools in communities such as human health informatics and mammalian genetic communities. Image alignment is an essential step to remove image distortions caused by experiment subjects movements and device system noise. Analyzing the aligned images is also important for comparing tissue changes over time. We will discuss two image alignment technologies here. First, technological breakthroughs in the fields of electronics and wireless communication will allow real-time monitoring of the human body movements and vital signals. Putting landmarks onto the captured human tissue models for further statistical shape analysis is a powerful tool to find the covariance of the organism's phenotype changes. Second, intensity based image alignment will allow us to remove image distortions caused by tissue movements and capture device background noise. For example, we can use the optical coherence tomography technology (OCT) to capture retina images of a large amount of experimental subjects. Despite the high resolution and noninvasive imaging, OCT suffers poor penetration depth through tissues and speckle noise. Aligning the repeatedly captured images will allow us to average the intensities to create shaper images to reveal more detailed tissue structures and changes.

## Biography

Mei Xiao has completed her PhD at the age of 32 years from UMass/Boston and postdoctoral studies from University of Calgary. She is a senior software engineer of the Jackson Laboratory, a premier mammalian genetics research organization. She has published 15 papers in reputed journals and conferences.

mei.xiao@jax.org