Glenbrook Technologies is honored to be chosen by Dr. Teresa Lever and the University of Missouri School of Medicine to design and build a high resolution fluoroscopic x-ray system that has the ability to continuously monitor and record the gullet of a live mouse as it is swallowing.

Glenbrook Technologies was singularly chosen because of their patented “magnification fluoroscopy” technology. Glenbrook had developed this technology used in their LabScopetm, for fluoroscopically monitoring small animal research procedures, at low radiation levels.

The importance of being able to fluoroscopically view the mouse swallowing dynamic is as follows: Several mouse strains have been established as genetic models for human neurological diseases that are known to cause swallowing impairment (dysphagia). Examples include amyotrophic lateral sclerosis (i.e., Lou Gehrig’s disease), Alzheimer’s disease, Huntington’s disease, Parkinson’s disease, Niemann-Pick disease, muscular dystrophy, spinal muscular atrophy, ataxia, Angelman syndrome, Down syndrome, and Fragile-X syndrome. Common symptoms of dysphagia in humans with these neurological diseases include malnutrition, dehydration, and respiratory complications, all of which may result in a poor quality of life and contribute to death. The focus of Dr. Lever’s research is to investigate each of these mouse models of neurological disease to determine whether they develop characteristics of human dysphagia and are suitable for translational dysphagia research. This research is currently funded by the NIH (NIDCD and NINDS). The ultimate goal is to identify novel and effective treatments to improve the swallowing function (and consequently the life-span and quality of life) of individuals with various neurological diseases.

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Dr. Lever’s lab, which is located in the Department of Biomedical Sciences, is outfitted with state-of-the-art equipment for conducting electrophysiology experiments, genotyping, behavioral phenotyping, general histology, immunohistochemistry, and a stereology system for bright field and fluorescence microscopy.