Ligand Sensor Devices and Uses Thereof

Overview
Auburn University is seeking licensees for a technology involving methods and compositions for evaluating the natural attraction of one or more ligands. Assays using the ligand sensor (LS) device allow detection of ligand-peptide interactions directly in tissue samples and thus provide an in vitro method to characterize peptide ligands. The LS Device and assays find particular use in characterizing cell-specific peptides isolated from in vivo screening in animals to determine their suitability for use in human therapy. The technology can also be used in the development of biosensors.

Advantages
- Allows detection of ligand-peptide interactions directly in tissue samples
- Provides an assay for the ligands specific to various organs, tissues, and cell types
- Allows for the isolation of tissue-specific molecules that may be used as targeting ligands in gene/drug therapy protocols

Description
Pharmaceuticals which are very effective for treating a disorder in one organ or tissue may have undesirable effects in other tissues. In this way, the effectiveness of drugs and therapeutic genes depends on tissue-specific delivery. One prospect for achieving tissue-specific delivery of drugs is the use of ligands which bind to specific cell types. However, the development of tissue-specific ligands for many differentiated tissues is limited by a lack of information on their cell-specific surface receptors.

One solution to this problem is the selection of ligands using phage display libraries. Peptides generated by phage display may have both therapeutic and diagnostic utility. They can be useful for the development of gene therapy vectors or drugs targeting various organs and tissues. However, while the in vivo phage display screening protocol has been successful in identifying tissue-specific ligands in mice and dogs, in vivo screening requires euthanasia and thus cannot be applied to humans.

Our technology provides a ligand sensor device which comprises an acoustic wave device coupled to a peptide of interest. The invention allows detection of ligand-peptide interactions directly in tissue samples. In this manner, the invention provides an in vitro assay to examine the cross-species properties of peptide ligands isolated in in vivo phage-display screening and thus provides an assay for the ligands specific to various organs, tissues, and cell types.

Status
- Issued U.S. Patent 7,138,238

Licensing Opportunities
- This technology is available for immediate non-exclusive licensing through Auburn's customizable "Ready to Sign" licensing program.
- Similar patents are available in the Biosensor Technology field.