

Technology Commercialization & Innovation Program
2012-R1 Solicitation
G R A N T A W A R D E E S

Total applications reviewed: 35
Total recommended for funding: 16
Licensees: 12
University Teams: 4

The technologies are emerging from the following universities:
U of U : 22 (12 funded)
BYU: 7 (1 funded)
USU: 2 (0 funded)
UVU: 2 (1 funded)
Weber: 2 (2 funded)

Economic Cluster Categories:
LS - Life Science: 15 (9 funded)
IT - Information Technology: 5 (2 funded)
MMEE - Manufacturing, Materials
Energy, Environmental: 15 (5 funded)

<u>College /Univ</u>	<u>Status</u>	<u>Licensee Name or Univ. Technology name</u>	<u>Description of Technology</u>
U of U	Licensee	Decipher GenX	Decipher GenX is developing the first objective diagnostic tests for Chronic Fatigue Syndrome (CFS), Fibromyalgia (FM) and Major Depression based on gene expression biomarkers that also discriminate these conditions from overlapping disorders. Decipher is also developing a gene expression panel that tests for athletic overtraining. A test for FM may be developed initially and offered separately from one for CFS since the FM patient population is reportedly two to three times larger. There are three current FDA-approved therapeutics to treat FM: Pfizer's Lyrica, Lilly's Cymbalta, Forest's Savella, and it may be possible to identify patient groups most responsive to a particular treatment using Decipher's biomarkers. This would avoid the enormous cost and delay of subjecting patients to multiple therapies until an appropriate therapy is identified.
U of U	Licensee	Elute, Inc.	Elute, Inc. has licensed the ElutiBone™ technology from the University of Utah. An antibiotic-releasing degradable polymer coated on widely-used natural or synthetic bone graft implants, ElutiBone seeks to prevent or reduce infections associated with orthopedic surgeries. ElutiBone's polymer-controlled release kinetics enable sustained antibiotic delivery to orthopedic surgical sites over the clinically relevant 6 to 8 week period. This represents a major advance over other commercially available bone grafts that release antibiotics for much shorter durations at sub-therapeutic levels, often promoting the growth of drug-resistant bacteria. ElutiBone will mitigate the increasing threat of costly infections related to joint replacement revision, open-fracture trauma and spinal fusion surgeries where \$50,000 procedures can have up to 15% infection rates with infectious recurrence of 20 to 30%.
Weber	Licensee	Ferro, Gundy, & Thomas, INC.	SelectProHR is a software program designed specifically for Human Resource staffing and recruiting companies. The software utilizes a complex algorithm, developed at Weber State, to help find and place the most qualified candidate for a specific position. SelectProHR is easy to integrate into a company's existing hiring systems. It is also a cost-effective tool that becomes more useful and accurate over time. The staffing company or employer directs job applicants to answer a short web-based questionnaire. The software then applies adaptive statistical algorithms which locate the best employee for the position.
U of U	Univ.	Heparin Radiopharmaceutical Imaging for EoE	We seek support to develop radioimmunodiagnosics to image and improve diagnosis of eosinophilic esophagitis (EoE). EoE is an allergenic condition of the esophagus due to infiltration and activation of eosinophils (a white blood cell) in the esophageal lumen, leading to esophageal occlusion, unexpected emergency room visits, and multiple endoscopies. Our noninvasive radioimmunodiagnostic approach combines heparin (delivered orally), which binds preferentially to eosinophils and granule proteins, with radiolabels to create 3D molecular maps of the entire esophagus. Such maps are unavailable using current techniques. The use of radioactive labels provides high contrast and sensitivity as natural radioactivity is negligible at the energies associated with Tc-99m (140 keV), and the normal esophagus is devoid of both eosinophils and eosinophilic degranulation products. Drawing from immunoscintigraphic technology (70% currently focused on heart disease) minimizes product development risk.

U of U	Licensee	iVeena	Treatment success for the pervasive, chronic, and blinding disease glaucoma is greatly obstructed by poor patient compliance and adherence with topical eye drops. In response to the frequent requests by patients and clinicians for simpler treatment paradigms that result in more consistent intraocular pressure (IOP) control and improved patient outcomes, iVeena is developing a controlled-release IOP-lowering drug formulation for placement in the ocular subconjunctival space. This formulation uses Glycosil®; a hyaluronic acid derived polymer that is highly biocompatible with the eye and has favorable physical characteristics that support controlled drug delivery with a number of generic IOP-lowering drugs. This project aims to effectively replace the chronic application of daily topical eye drops with a minimally invasive in-office procedure that will provide clinically effective concentrations of an IOP lowering drug in a sustained manner for a period of 3 months.
U of U	Licensee	Lazarus Medical Technologies, LLC	Sationary chest tubes have been the norm since 1875 and remove only what is in their immediate vicinity. Frequently, additional tubes have to be placed to provide adequate drainage. The moving chest tube will traverse the thoracic cavity to improve evacuation of fluid. It is expected that a moving chest tube will speed resolution of the patient's problem allowing earlier patient discharge. A prototype built from available chest tubes to demonstrate feasibility is capable of moving in a 180-degree arc. The grant will be utilized to have dies created to have a custom tube extruded. The extruded tubes will have dedicated lumens to contain the actuation wires that enable the desired movement while preventing contact of lung tissue with the wires. An external actuation mechanism will effect movement within the thorax. The tube will be otherwise similar to currently used devices including common radiographic markings and drainage holes.
BYU	Licensee	MegaStir Technologies, LLC	The automotive industry and the U.S. Government are aggressively pursuing use of lightweight materials such as Al alloys and Mg alloys in auto body structures for improved vehicle fuel efficiency. The combination of lightweight materials with widely acceptable structural materials such as high-strength steels presents a number of technical challenges in auto body-in-white assembly. One of them is how to join these materials together to form an integrated structure that meets automotive or other performance requirements. An enabling technology called friction bit joining (FBJ), invented in collaboration between Brigham Young University and Megastir Technologies (Orem, UT), has been shown to produce high levels of joint strength in dissimilar combinations of steel and Al or Mg. This technology will allow for the fabrication of ultra-light automotive structures that are not currently possible because of the limitations of current joining methods.
Weber	Licensee	Precision Targets LLC	Weber State has developed a light weight, cost effective, hovercraft that is capable of traveling at speeds up to 60 MPH. The hovercraft will serve as a training tool for Navy/Marine/Airforce ground attack aircraft. It can travel over multiple terrains such as water, sand, light brush and unpaved roads. Additionally, the hovercraft has the potential to autonomously pilot itself with motion control software. Current mobile ground target solutions fail to meet one or more of the following criteria: speed, navigating uneven terrain, autonomous piloting, and economical unit cost. The hovercraft is a truly unique solution with the promise to meet all of the aforementioned criteria.
UVU	Univ.	Protein-Based Identification Technology	Hair is a common part of our environment, ubiquitous in our homes and workplaces. It is also common in crime scenes and can be used to link someone to a specific place. While it can supply important information there are tight limitations to this. Analysis of hair shape is difficult to use in court. The DNA in hair is very informative, but it is often absent or degraded. Hair however, has one major advantage: it is stable. The proteins in hair persist in the environment well after DNA is degraded. Proteins however, contain evidence of DNA variation, and therefore can be used to identify crime victims and / or suspects. We have established a proof-of-concept technology, that uses less than a mg of hair protein to identify individual peptide fingerprints with a 1 in 20,000 probability for an individual. We seek in this proposal to protect the intellectual property, facilitate analysis of each sample, and broaden the product base to the use of other relevant tissues.
U of U	Licensee	Salarius Pharmaceuticals, LLC	Lysine Specific Demethylase 1 (LSD1) is a histone demethylase that removes both repressive and permissive marks on histones. These marks are important in directing transcriptional regulatory proteins to either activate or repress expression of target genes. LSD1 is overexpressed in a number of human cancers as well as in tumor stem cells. We have discovered and developed a series of small molecule inhibitors that potently repress LSD1. We have optimized these compounds and are starting development in animal models as a first step toward clinical development. This is an important and novel cancer program that could treat cancers without option.

U of U	Licensee	Seismic Options Safety Systems (SOS Systems)	<p>The SOS trapped miner technology uses seismic equipment and SOS Systems' software to locate miners that are trapped in an underground mine. Before a collapse the SOS team installs a system of sensors and seismographs on the surface of the mine and "thumpers," like hammers, below ground. The system is calibrated and left almost dormant until an accident happens. The system is then activated to "listen" for miners who are trapped. It lets rescue crews know if miners are alive, where they are located, how many miners there are.</p> <p>The technology is innovative in that no physical connection to the surface of the mine is necessary. This is a key advantage over our competitors, who mainly use a system that requires electric cables installed between the surface and underground corridors. These cables are very likely to be cut in a collapse.</p>
U of U	Univ.	Steerable Snare for Intravascular Retrieval	<p>Vascular snares are simple devices that are frequently used during intravascular procedures. Typically placed through a guide catheter these devices are placed into the patient to retrieve IVC filters, PFO closure devices that have migrated, stents, and other devices. Often the target object is difficult to engage with currently available snares and procedure time and patient risk increase. In extreme cases, invasive surgery is required to remove the target object. We have developed a steerable snare, which is the only deflectable snare that allows for a higher degree of manipulation and therefore improved location and fixation or grasping of structures or devices. Our steerable snare incorporates both 90 degree deflection of the snare loop as well as torque translation through the length of the device. This design incorporates all of the basic elements required to allow for ensnaring an object in a 3 dimensional space around the tip of a guide catheter.</p>
U of U	Univ.	Therapeutic drug for Down syndrome (DS)	<p>Using new techniques to link genes to the brain, we have identified a specific receptor as a possible target for the treatment of the cognitive deficits in individuals with Down syndrome (DS). A number of pharma companies have made compounds in this class (antagonists of this target) as a possible therapy for learning/memory in Alzheimer's. We have tested one compound in this class, which resulted in the rescue of cognitive deficits. We now have a compound that was originally developed by a national pharma company for Alzheimer's, but was abandoned as the competition had become too established. We also have a Material Transfer Agreement to test it in mouse models of DS. We plan to licence this compound exclusively and establish a trial center out of this process to create a long term business, and a seed for increased Preclinical/Clinical trials in Utah. Funding: NIH grant "Down syndrome: Genes, Brain and Behavior"- PI J Korenberg, Co-PI G Gerig (\$3,000,000 over 5 years)</p>
U of U	Licensee	Vaporsens	<p>Vaporsens is developing the first device to provide continuous, non-contact detection for all explosive threats. It's a "smoke detector" for explosives. Despite billions in federal spending on airline passenger screening since 2001, the US cannot reliably detect explosives that could bring down a plane. According to the 9/11 Tenth Anniversary Report Card, "explosives detection technology lacks reliability and lags in its capability to automatically identify concealed weapons and explosives."</p> <p>Current scanners fall short because they can't chemically detect actual explosives that terrorists use. Consequently, screening is insufficient in airports, and is non-existent in many public places such as stadiums and public buildings where a single lapse in security can lead to massive repercussions. In contrast, the Vaporsens detector can chemically detect a wide range of explosives on every single person and bag going through security without the need for contact.</p>

U of U	Licensee	Veritract, Inc	<p>Nasogastric feeding tubes are the most commonly placed gastrointestinal devices in hospitals today. Over 80% of ICU patients and many more patients in general hospital floors (1.25 million total US patients annually) receive nutrition via these tubes. Because most of these tubes are placed blindly, without guidance, thousands of tubes are misplaced to the lung, causing serious injury and even death. To verify proper placement, most hospitals require X-ray confirmation of placement but incur significant extra expense as a result.</p> <p>Using proprietary methods, Veritract leverages the advancements in endoscopic technology to allow these technologies to be built into an inexpensive disposable device. Our design integrates optics for vision, and steering for guidance, allowing feeding tubes to be guided and placed into the intestinal tract under direct visualization. This allows for quicker, safer, and more economical placement and improves patient care while streamlining hospital procedures.</p>
U of U	Licensee	Xandem Technology	<p>Xandem is offering a totally unique and cost-effective technology for detecting and locating people. Our technology can detect and locate people through walls and obstructions, and does not require the person being tracked to carry any form of device. It is valuable for locating people that cannot be expected to cooperate with a system. This may be the case either because they are intentionally evading it, because they are physically unable, or because they do not want to be inconvenienced by carrying an RFID tag.</p>