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Highlights

- Over the past 40 years, the University of Utah has been instrumental in the creation of 188 companies.
- At least 61 percent of all companies launched by the University still have operations in Utah, generating jobs and income for Utah residents and tax revenue for state and local units of government.
- In 2009, at least 98 University startups and licensees had employees and operations in Utah. These companies directly employed 5,937 people. In addition to the direct employment, 9,830 jobs were generated by indirect purchases and induced consumer spending, resulting in a statewide employment impact of 15,767 jobs. The employment multiplier for U of U startups is 2.66.
- The direct wages and salaries paid to employees of University startups were estimated to be $358.7 million in 2009. The indirect and induced impacts of these payments created $395.9 million in earnings for employees in other industry sectors, resulting in a statewide earnings impact of $754.5 million. The earnings multiplier for U of U startups is 2.10.
- University startups are typically innovation based and technology driven, which is reflected in the high average annual wages paid to workers in these companies. In 2009, the average wage per job in University startups and licensees was $60,415, significantly higher than the statewide annual average of $38,052 for all Utah workers.
- In 2009, University startups and licensees contributed approximately $1.2 billion to Utah's gross state product. Utah's total gross state product in 2009 was $112.7 billion.
- University startups and licensees generated a total of $76.6 million in state and local tax revenue during 2009. This includes $61.6 million in state tax revenue and $14.9 million in tax revenue for local units of government.
- The University of Utah's record in licensing technology and launching new companies is impressive. In 2009, the average number of startup companies created by U.S. research universities was four. The University of Utah launched 22 companies that year, five times the national average.
- In 2009, the University of Utah was ranked as the number one research institution in the country as measured by startup company creation, surpassing both MIT and the California Institute of Technology.

The Economic Impact of Startup Companies and Invention Licensees Originating from Research at the University of Utah

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Introduction

Research and the commercialization of research have become important functions of the modern-day university. These commercialization efforts can take many forms, including licensing technologies to established firms, university-industry research partnerships, and the creation of new companies formed around technologies developed at the university. Such collaborations and efforts translate to economic value when new concepts become prototypes for new products.

The University of Utah is widely recognized as a major research institution, receiving millions of dollars in research contracts annually. While the economic impacts related to the expenditures of those research dollars are significant, they do not capture the full economic impact of the University's research efforts. The licensing of the University's intellectual property creates and sustains jobs in the Utah economy when companies utilize these licensed technologies to develop new products and processes.

Since 1967 the Technology Commercialization Office at the University of Utah has managed the University's intellectual property, establishing commercial partnerships to develop products based on technologies developed by University faculty, staff and students. Since that time, 188 companies have been formed to commercialize technologies, or have licensed inventions, developed at the University of Utah. The largest share of these businesses are Utah-based companies, creating jobs and income for Utah workers and generating tax revenues for state and local units of government.

At the request of the Technology Venture Development Office at the University of Utah (TVD), the Bureau of Economic and Business Research at the University of Utah (BEBR) estimated the economic impact of University startups and licensees on the Utah economy during 2009. These impacts include the economic effects on employment, earnings, gross state product (GSP) and state and local tax revenues that were generated by either the activities of companies that have been established to commercialize technologies developed at the University or by Utah-based companies that have licensed inventions from the University.

A brief discussion of general trends in technology commercialization and an overview of the University of Utah's technology-transfer activities are presented in the next section. This is followed by the core findings of the report, namely the economic impacts of University startups and licensees. These include the impacts on jobs, earnings, GSP and tax revenue that can be attributed to University startups and licensees during 2009.

The employment, earnings and GSP impacts were estimated using RIMS II, an econometric model developed and maintained by the Bureau of Economic Analysis, a division of the U.S. Department of Commerce. The fiscal impacts were generated using a model developed by BEBR. An overview of the RIMS model and a description of the methodology used to estimate the fiscal impacts are provided in Appendix A. Also included in Appendix A is a discussion of the methodology used to gather data on the companies included in this report.

The list of startup companies provided by TVD is included in Appendix B.

Technology Commercialization: History and Trends

The economic significance of the research university goes far beyond its role of education and training. For several decades, university research has increasingly formed the foundation of significant technological advancements. These technologies enter the marketplace through research collaborations with industry, licenses, and to an increasing extent, university-driven efforts to turn new ideas into startup companies.

The movement of research universities into the technology commercialization arena has been a relatively recent phenomenon. Well into the 20th century much university research was oriented toward the economic interests of the states in which they resided. It was not until the period following World War II that U.S. research universities assumed the role of primary performers of the nation's basic research.[1]

Beginning in the 1960s, some federal research agencies, including the Department of Defense and National Science Foundation, began to allow universities to patent and license results from federally funded research. In the early 1970s, many research universities established internal technology transfer offices devoted to licensing, patenting and commercializing university-developed inventions.[2]

In 1980, the Bayh-Dole Act enabled universities to own and manage intellectual property arising from federally sponsored research, with royalties shared between the university and inventors, and created a uniform intellectual property management policy for the federal agencies that fund research. Although no causal link has been established, shortly after the passage of the Bayh-Dole Act, the number of startups and products based on university intellectual property (IP) rose steeply as universities and faculty had an incentive to commercialize their inventions.[3]

Since 1980, universities have vigorously embraced their new role. According to the 2010 annual survey conducted by the Association of University Technology Managers (AUTM), in fiscal year 2009 596 new companies were formed as a result of university research and 658 new commercial products were introduced to market.[4]

Local economies benefit from these technology-transfer activities. According to the results of a survey conducted by AUTM in 2008, 72 percent of university startups establish headquarters in the licensing institution's home state. Therefore, not only do universities create knowledge, they are also sources of innovation and powerful engines for economic stability and growth.[5]

University of Utah Technology Transfer and Commercialization Activities

The University of Utah was an early adopter of the technology-transfer process, establishing the Technology Commercialization Office (TCO) in 1967. Since that time, TCO has managed the commercial aspects of technology arising at the University, facilitating the commercialization of the University's scientific and technical research findings.

One role of the TCO is to evaluate research disclosures in order to identify those with the most potential. To that end, TCO evaluates almost 200 new inventions each year. Using a variety of technology-transfer models, TCO works to commercialize the most promising of these inventions. If a technology appears both legally protectable and commercializable, TCO obtains legal protection through the patenting or copyrighting process.

In some cases, the University licenses its technology to established companies with an appropriate market. These companies have the development, manufacturing and marketing resources necessary for commercial success and can provide the University with immediate consideration that can be paid to inventors and/or reinvested in new research.

In other cases, TCO recognizes that established companies may not be the best option for commercializing a technology and may encourage interested faculty members to commercialize their own research—essentially creating a startup or spin-off company.

As measured by the number of startups, the University has proven itself to be a major contender, competing with prestigious universities throughout the country, including the University of California system, University of Kentucky Research Foundation,

1. David Froessner, Jennifer Bond, Sumiye Okubo, Mark Planting. *The Economic Impact of Licensed Commercialized Inventions Originating in University Research, 1997–2007*. Accessed at www.bio.org/ip/techtransfer/BIO_final_report_9_3_09_rev_2.pdf

2. *Ibid.*

3. Krisztina "Z" Holly. "The Full Potential of University Research: A Model for Cultivating New Technologies and Innovation Ecosystems," *Science Progress*, June 2010. Accessed at www.scienceprogress.org/2010/06.

4. *Lab Manager Magazine*, "Universities Report Startup Creation, Licensing Activity and License Income Strong Despite Recession". December 17, 2010. Accessed at www.labmanager.com??articles.view/articlesNo/2513/

5. "The Full Potential of University Research: A Model for Cultivating New Technologies and Innovation Ecosystems."

Columbia University, Carnegie Mellon, Johns Hopkins University, and Purdue University.

According to AUTM, the average number of startup companies created by U.S. research universities during fiscal year 2008 was three and increased to four in 2009.[6] In comparison, the U of U created 21 companies in 2008 and 22 in 2009. In 2010, the University launched an additional 19 companies.

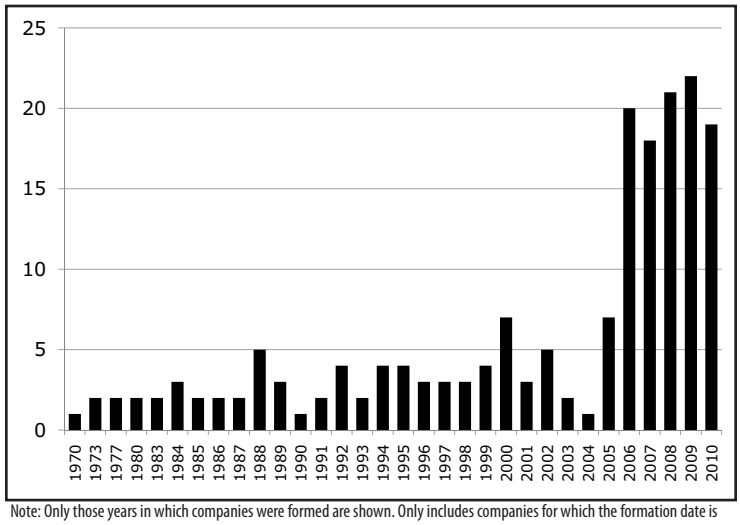
These impressive efforts propelled the University into the number one research institution in 2009, as measured by startup company creation based on university technology, overtaking the Massachusetts Institute of Technology (MIT). According to AUTM, in 2009 MIT and the California Institute of Technology tied for second with 18 companies each.[7]

Over the past 40 years the University of Utah has launched or licensed inventions and technologies to 188 companies. The first of these, TerraTek, Inc., was launched in the early 1970s. This company, now operating in Utah as a division of Schlumberger, Inc., has contributed to Utah's economy since 1973.

Other early startups (companies formed in the 1980s) such as Bunnel Life Systems, Ceramatec, ARUP Laboratories and Evans & Sutherland, are now well-established employers providing thousands of jobs for Utah workers, as well as significant tax revenue for state and local units of government.

With the creation of the Technology Venture Development Office (TVD) in 2005, TCO efforts have been even more focused on IP commercialization and economic development. Since the inception of TVD, the University has created approximately 100 companies, a significant increase in commercialization efforts. Figure 1 shows startup activity over time.

Figure 1
University of Utah Startups and Licensees, 1970–2010



Note: Only those years in which companies were formed are shown. Only includes companies for which the formation date is known.
Source: Office of Technology Commercialization, University of Utah.

Between 1970 and 1980, the University's commercialization efforts produced five companies, including TerraTek, Metals Manufacturing, Inc., Advanced Composite Materials and Iomed. Two of these firms have been acquired but were still operating in Utah in 2009.

The decade of the 1980s produced an additional 21 companies. This group includes well-established firms such as ARUP Laboratories, Anesta (now a division of Cephalon), Evans & Sutherland (acquired by Rockwell Collins) and Watson Pharmaceuticals (was TheraTech). Of the 21 companies formed during the 1980s, 16 are still in operation with facilities in Utah, 3 have been dissolved, and 2 are no longer operating in the state.

Thirty companies were created during the 1990s. At least 13 of these companies are still operating in Utah, the largest of which include Idaho Technology and Myriad Genetics. Several companies created during this period have been acquired and no longer operate independently.

From 2000 through 2004, 18 companies were formed. Of these, more than half are still operating in the state. With the exception of Sonic Innovations, these companies are relatively small, typically employing fewer than 30 people.

Economic Impacts of University Licensing

Of the 188 University startups and licensees, 135 are known to be in operation (both in-state and out-of-state) and 43 have been dissolved, either voluntarily discontinuing operations or through mergers and acquisitions. No information was available on the remaining 10 companies.

Of the 135 currently operating companies, 114 are either headquartered in Utah or have operations in the state. The remaining 21 companies are located outside the state and have no employees in Utah.

The impact analysis presented in this report estimates the impact of University startups and licensees on the Utah economy during 2009 and is based on information for 98 companies that were operating in Utah during that year.

Industry Concentration of University Startups

Startup companies and licensees of University technology range in size from one-person operations to companies that employ more than 1,000 people. The technologies and related products of these companies also represent a wide range: from biomedical research to testing services to waste management.

Of the 98 companies included in this analysis, 70 were classified as Professional, Scientific, and Technical Services (NAICS 541). 8 This industry sector includes establishments engaged in processes where human capital is the major input and encompasses a wide range of activities including engineering, design and architectural services; computer systems design; and R&D in biotechnology.

In 2009 employment in this group totaled 1,956, averaged about 28 workers per firm, and was concentrated in three companies:

6. This ranking is based on AUTM's survey of 181 of the nation's top research institutions.

7. U Technology Venture Development, "U of Utah: No. 1 for Startups," December 20, 2010. Accessed at http://www.news.techventures.utah.edu.

Myriad Genetics, Idaho Technology and Ceramatec. All of these firms were launched in the early 1990s.

As measured by number of employees the largest industry group is Health Care Services (NAICS 621), which includes organizations that provide a wide variety of health care services, including medical and diagnostic laboratories. Included in this group is ARUP Laboratories, the largest company of the 98 firms in this analysis. Established in 1984, ARUP Laboratories is a leading reference laboratory owned by the University of Utah and run by the Department of Pathology.

Companies involved in chemical manufacturing (NAICS 325) employed 669 people in 2009. Included in this group are Anesta (operating in Utah as a division of Cephalon) and Watson Pharmaceuticals (formerly TheraTech). Both companies were founded in the 1980s by University of Utah professors.

Table 1 shows characteristics, by industry group, of the University startups included in the analysis.

Table 1
Employment and Wage Information for University of Utah Startup Companies, 2009

Group†	Number of Companies	Jobs	Total Wages	Avg. Ann'l Wage
Chemical Manufacturing (NAICS 325)	8	669	$33,942,384	$50,736
Computer/Electronic Manufacturing (NAICS 334)	4	184	$12,105,320	$65,760
Equipment Manufacturing (NAICS 336–339)	6	181	$11,958,723	$66,101
Wholesale Trade (NAICS 42)	5	57	$2,963,772	$51,996
Information Services (NAICS 511)	3	42	$2,436,206	$58,236
Professional/Scientific/Technical Services (NAICS 541)	70	1,956	$115,646,544	$59,124
Health Care and Waste Management Services‡	2	2,848	$179,620,092	NA
Totals	98	5,937	$358,673,041	$60,415

† Group designation is based on the North American Industry Classification System (NAICS).
‡ NAICS 621—Health Care Services and NAICS 561—Waste Management Services have been combined to comply with nondisclosure requirements.
Source: Bureau of Economic and Business Research, University of Utah.

Economic Impacts on Employment and Labor Income

In 2009, the direct employment of the startups and licensees included in this report totaled 5,937 jobs. Wages paid to these workers totaled $358.7 million, for an average annual wage of $60,415, significantly higher than the statewide 2009 average of $38,052.

In addition to the direct employment are the indirect and induced effects. These impacts were calculated using the direct-effect multipliers in BEA's RIMS II model. Applying the direct-effect multipliers to the direct employment produces an indirect and induced employment estimate of 9,830 jobs in other industry sectors throughout the state of Utah, and yields an employment multiplier of 2.66. This job estimate includes both full-time and part-time workers as well as the self-employed.

The indirect and induced earnings impacts were also calculated using RIMS II direct-effect multipliers and totaled $395.6 million, for a derived multiplier of 2.10. The earnings estimate includes wage and salary disbursements, supplements to wages and salaries, and proprietors' income.

Based on this analysis, University of Utah startups and licensees supported 15,767 jobs and generated $754.5 million in earnings in Utah in 2009. These impacts are summarized in Table 2.

Table 2
Economic Impacts of University Startups in 2009: Jobs and Earnings

Impact	Jobs	Earnings
Direct Impacts	5,937	$358,673,041
Indirect and Induced Impacts	9,830	$395,855,283
Total Economic Impact	15,767	$754,528,324

Source: Calculated by BEBR.

Economic Impact on Gross State Product

In addition to the employment and income impacts are the economic effects on Utah's gross state product (GSP). GSP is a measure of the total output of all industries less the intermediate inputs and is the state equivalent of gross domestic product at the national level.

In 2009 University startups contributed approximately $1.2 billion to Utah's GSP. This included the direct effects as well as the indirect and induced impacts. In 2009 Utah's total GSP was $112.7 billion.

Impact on State and Local Government Tax Revenues

The tax impacts of University startups have been estimated using a model developed by the Bureau of Economic and Business Research. A discussion of this methodology is presented in Appendix A.

In 2009 University startups and licensees generated approximately $76.6 million in state and local tax revenue. This included $61.6 million in state tax revenue and $14.9 million in tax revenue for local units of government.

The total economic impact of University startups on the Utah economy in 2009 is summarized in Table 3.

Conclusion

Technology transfer and commercialization have long been a focus of the University of Utah. For more than 40 years the University has fostered a research environment to accelerate innovation and establish foundations for new technologies and products. These efforts have culminated in the creation of more than 100 Utah companies that contribute to the state economy by providing jobs and incomes for Utah residents. Additionally, the activities of these companies, and the spending associated with

8. North American Industry Classification System. NAICS is the standard used by federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing and publishing statistical data related to the U.S. business economy.

Table 3 Summary Impacts of University Startups: 2009	
Employment Impact	15,767
Earnings Impact	$754,528,324
Gross State Product Impact	$1,199,371,972
Tax Revenue	$76,584,625
State	$61,644,964
Local	$14,939,661
Source: Calculated by BEBR.	

those activities, generate tax revenue for state and local units of government.

The economic impacts of the University's technology-transfer efforts presented in this report are both substantial and conservative. They do not include the direct impact of University expenditures made with licensing/royalty income for salaries, equipment, overhead costs, etc., nor do they include estimates of the impacts generated by companies that have located or expanded in the area to take advantage of technologies being developed at the University.

It is clear, however, that the contribution of technologies transferred by the University are substantial and measurable. In 2009, approximately 15,767 jobs and an estimated $754.5 million in earnings were attributable to startup companies and licensees of University technology. As the knowledge-intensive, innovation-based environment of the modern economy continues to grow, the University of Utah's technology-transfer program can only increase in importance as an engine for economic stability and growth.

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Appendix A: Methodology

Using RIMS II to Calculate Economic Impacts

The employment, labor income and GSP estimates presented in this report were generated using RIMS II, a standard input-output model developed and maintained by the Bureau of Economic Analysis. A brief overview of RIMS II is presented here. A detailed description of the model can be accessed electronically at www.bea.doc.gov/bea/regional/rims.

Overview of RIMS II

The Bureau of Economic Analysis (BEA) in the U.S. Department of Commerce prepares economic multipliers for states and counties (and combinations thereof) within the United States. The multipliers estimate the effects of change in the output of one or more industries in an area on the output, employment and labor earnings in other industries in that area. The multipliers are produced by the BEA's Regional Input-Output Modeling System, known as RIMS II, using data from the national input-output accounts for the U.S. and local area personal income.

RIMS II creates an I-O table that shows the distribution of inputs purchased and outputs sold for each industry in the U.S. RIMS II derives the I-O table from two data sources: BEA's national I-O table, which shows the input and output structure of 406 U.S. industries, and BEA's regional economic accounts, which are used to adjust the national I-O table to reflect a region's industrial structure and trading patterns. RIMS II multipliers can be developed for one or more counties and for any industry or group of industries in the national I-O table.

RIMS II provides two types of multipliers for estimating economic impacts: final-demand multipliers and direct-effect multipliers. Final-demand multipliers are used if data on final-demand changes are available; i.e., information about the purchases of goods and services (including labor) that are made by the initially affected industry. The direct-effect multipliers are used if initial changes in employment and labor income in the affected industry are available. The employment, labor income and value-added (or gross state product) impacts presented in this report were generated using the RIMS II direct-effect multipliers.

Terminology Used in This Report

The direct-effect multipliers in RIMS II can be used to estimate impacts labeled "direct" and "indirect and induced." The definitions of these terms are given below.

The *direct impacts* are the changes in sales, employment and labor earnings that occur during the first round of spending in the affected industry. In this analysis, the direct employment and labor income impacts include the people employed by University startups and licensees and the wages they received in 2009.

The *indirect impacts* are the changes in sales, employment and labor income within a region in backward-linked industries that supply goods and services to the affected industry. *Induced impacts* are changes in sales, employment and labor income within the region that are the result of household spending of the income earned by workers in both the affected industry and the supporting industries. In RIMS II, the indirect and induced effects are combined into one multiplier.

The economic components in this analysis that were generated using RIMS II include employment or jobs, labor income and value-added or gross state product (GSP).

The *employment /jobs* estimate includes all part-time and full-time workers, including partnerships and sole proprietors (the self-employed).

Labor income is the sum of wages, salaries, supplements to wages and salaries (such as bonuses), proprietors' income, director's fees and other employer contributions.

GSP or value added is the total value of goods and services produced less the cost of goods and services used in the production process.

Fiscal Impacts

The fiscal impacts presented in this study were estimated using a model that quantifies the relationship between Utah residents' earnings and certain state and local tax collections. These relationships are expressed as a ratio that represents effective state and local tax rates. These ratios are applied to the total labor

income impact to estimate the tax dollars that flow to state and local units of government.

At the state level, the fiscal impacts analysis includes tax revenue generated through the individual income tax, state sales tax and other miscellaneous taxes. At the local level, the fiscal impact analysis includes tax revenue generated through local sales tax.

The fiscal impact estimates contained here are likely conservative estimates. Using this effective tax rate methodology assumes that state and local taxes are directly tied to earnings. This assumption may hold with respect to state income taxes, and to a lesser degree, sales taxes; however, the relationship between earnings and property taxes or corporate income taxes is less obvious. Tax revenue in these two tax categories may not increase in direct proportion to increases in earnings. Therefore, the effects on property tax revenues and corporate income tax revenues have not been estimated.

Data Development and Methodology

Employment and wage data for the companies included in this analysis were obtained through email surveys, the Technology Venture Development Office (TVD) at the University of Utah and the Utah Department of Workforce Services (UDWS).

Employment information for companies that are covered by unemployment insurance laws was provided by UDWS. Because individual company information is protected by law, companies were grouped based on their North American Industrial Classification System (NAICS) codes. The NAICS code for each of these companies was determined using the Utah Economic Data Viewer available on the UDWS website. The 2009 total employment and wages for each group of companies were provided by UDWS.

Companies that are not in the UDWS database were contacted via email or telephone using contact information provided by TVD. For a small number of firms, repeated attempts to contact were unsuccessful. In these cases, BEBR relied on employment information collected by TVD. Wages paid to these employees were estimated using industry average wage data maintained by UDWS available on the Utah Economic Data Viewer.

Using the direct employment and wages for University startups and licensees, the indirect and induced employment, labor income and GSP impacts were estimated using the latest industry-specific RIMS II direct-effect multipliers. The latest version of RIMS II is a 406-industry model based on the 2002 Benchmark Accounts for the U.S. and 2007 regional accounts, which were inflation-adjusted by BEBR.

The impacts presented in this analysis show the economic effects of companies that were launched by the University or that licensed technology from the University any time since 1970, regardless of whether the company was still utilizing that technology in 2009.

Appendix B: List of Startups and Invention Licensees, 1970–2010

7 Revolutions
A.D.A.M
Aciont
Advanced Composite Materials
Advanced Processing Technologies
Advanced Signal Detection
Akadi LLC
Allegro Diagnostics
Allocure
Allvivo Vascular
Amirsys
Anesta (acquired by Cephalon)
Angry Duck Solutions
Applied Medical Visualizations
Arrhythmia Research
ARUP Laboratories
Attensity Corporation
Baby Jock
BioCentrx
Bioclassifier (formerly UGEN)
BioEnergenix
BioFuels Development
BlackRock
Boulder Technology Development Labs
Branching Tree
Bricknell Biotech
Bunnel Life Systems, Inc.
Calcitech, Ltd.
Carbalyn
Cardiowest (now World Heart)
Catheter Connections
Cephalon (acquired Anesta)
Celux Technologies
Central Logic
Ceramatec
Cimarron Software
Cognetix
Coherex (acquired Proximare)
ContraDyn, Inc.
Credibility Assessment Technologies
Cyberkinetics
Darbick Instructional Software
DataChem Lab, Inc.
Datex-Ohmeda
Diacor
Evans & Sutherland
Echelon Biosciences, Inc.
Edwards Lifesciences Corp.
EGS
ENECO, Inc.
Energence Partners
Epitel, Inc.
Ergonomic Tool Development
ErgoWeb
Exeven
F2 Faint and Fall
Fay Financial Engineering Center
Femtoscal
Fiore Automation
Fuels Development Group
G6
Genmark
Genta
Geo Mind LLC
Globalmatics
GlycoMyra
Glycosan Biosystems
Goldfinger
Handtronix Corporation
Headwaters Clear Carbon
HeavyStone Labs
Heightened Technologies
HerediLab
Hifunda-Oscilla
Honde
Hydra Biosciences
I2S
Idaho Technology
ImageTechnologies
Inflabloc
Innovative Caregiving Resources
Inotech (formerly H2O Tech)
Intan Technologies LLC
Integra Lifesciences Corp.
Integratech
Intellevis
Iomed (acquired by EMPI)
Iveena
J. Bunger & Associates
JSK Therapeutics

Kayak
Keys 2 Safe Driving
KickStart
Larada
Lifescan
Lineagen Research Corp. (acquired by LV Partners)
LiveWire Test Labs
LV Partners
MacroMed
Manticore Pharmaceuticals
Marrek
Medtronic Gastro/Uro
Metallosensors
Metals Manufacturing
MicroMath
Milcin Therapeutics
Millenium Synfuels (AMBRE Energy)
Mineral Technologies
Miracotech
Myriad Genetics
Nanomedic
Nanonc, Inc.
Nano-oxides
NAPE (was ecoTeach)
Navigen
N-ERGY, LLC
Neuroadjuvants
N-Focus
NPS Pharmaceuticals
Pharmanex
Optema
Osiris
Osteoseek, Inc.
ParSiTech
PartNet
Parvus Corporation
Philotek LLC (was Sigma Technologies)
Postnova Analytics
PowerMems
Predictive Medical
Process Instruments
Purple Energy
Q Therapeutics
Redspan
Rescue Medical
Respiris (acquired by Lineagen)
Riggalya
RNA Biosciences
Rocky Mountain Research
Rosetta Inpharmatics (acquired by Merck)
RU Ready
Sabella, Inc.
Salt Lake Biosciences
Sarcos (acquired by Raytheon)
Scintalla (VuTara)
Sci-U
Seasonal Energy
Sensicore
Sentrx Animal Care
Sentryx Surgical (acquired by Carbylan)
Sera Prognostics
Sfida
Short Solutions
Signature Immunologics
Solan
Sonic Innovations
Spectrotek
State of RT/RayScale (merged with Nvidia)
StemCells (Cyto Therapeutics)
Surfagen
Techniscan Medical Systems
TechnoImaging
Tepnel Lifecodes
TerraTek
TheraDoc
TheraRenal
TheraTarget
TheraCom
Thermimage
Tramontane, Inc.
Trapeze Media
Universe Partners
Veritract
Versa Power Systems
Versalion Pharmaceuticals
Vestan
Viewpoint Manufacturing
ViroPan
VisTrails LLC
Visual Influence (acquired by Numira Biosciences)
Visual Share LLC
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Wasatch Nanopore Sensors LLC
Waste Water Compliance Systems
Watson Pharmaceuticals
Wyoming Research Innovations
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