



Full Speed Ahead: Arizona's Bioscience Momentum



RAMPING UP

Arizona made substantial strides in 2003 in its drive to become a national competitor in the bioscience industry, one of the fastest-growing segments of the 21st century knowledge economy. Led by successful legislation to fund \$440 million in research facilities at the state universities, numerous developments unfolded that are helping to chart progress on the state's long-term bioscience strategy, known as *Arizona's Bioscience Roadmap*.

A summary of these accomplishments appears on the reverse side of this brochure. They are categorized by the four major *Roadmap* strategies identified by the Battelle Memorial Institute. Battelle, a worldwide leader in the development, commercialization, and transfer of technology, is facilitating the *Roadmap* project.

Here is a general overview of progress highlights from the *Roadmap's* first two years:

2002 – RESEARCH: Extensive research and interviews culminated in a report concluding that Arizona can become a leading state in niche areas of the biosciences. The state is positioned to reach national prominence within five years in three scientific disciplines – bioengineering, cancer research, and neurological science – if they are properly funded and organized. Overall, Battelle offered 19 specific action steps for Arizona to address – some immediate, others long term. Additional details are available at www.flinn.org.

2003 – INITIAL IMPLEMENTATION: Three statewide committees of leading scientists developed action plans on the scientific platform areas. Three counterpart workgroups focusing on economic development issues completed action plans on areas identified as critical by Battelle: capital formation, entrepreneurial assistance, and facilities. Recommendations of all six workgroups will be formalized and announced in early 2004.

The *Roadmap* project is commissioned by the Flinn Foundation.

THE ROAD AHEAD

To continue Arizona's momentum, two major issues must be addressed during 2004. These are the critical, time-sensitive items among a larger set of recommendations to be moved forward by the Arizona's Bioscience Roadmap Steering Committee in January 2004.

TECH-TRANSFER INITIATIVE: Arizona has a golden opportunity to tackle one of its current weaknesses – the capacity for universities to turn research discoveries into revenue and benefit from spinoff companies. Voters can approve a Constitutional amendment in November 2004 that would enable universities to take equity positions in companies stemming from their discoveries.

CAPITAL FORMATION: Arizona struggles not only in attracting venture capital, but especially in pre-seed and seed funding that lead discoveries to the venture-capital stage. The formation of a statewide bio-seed fund is needed to stimulate private support and investment.

The three scientific platforms will continue to develop plans to establish statewide collaborations among scientists working in bioengineering, cancer research, and neurological science. Strategies must be cemented to address cross-cutting needs that affect all disciplines, such as shared facilities and bioinformatics tools. The three economic development workgroups will continue to address pertinent issues collaboratively as needs and opportunities arise. Finally, a new workgroup will be introduced to complement ongoing activities concerning the state's bioscience workforce needs.

A STATEWIDE “BIO-TAPESTRY”

MANY DIVERSE ORGANIZATIONS ARE FUELING COLLABORATIVE EFFORTS TO CRAFT ARIZONA’S FUTURE IN BIOSCIENCE.

■ ASSOCIATIONS ■ CORPORATE ■ EDUCATION ■ GOVERNMENT, TRIBES ■ HOSPITALS, RESEARCH INSTITUTES ■ PHILANTHROPY

ARIZONA BIOINDUSTRY ASSOCIATION SALT RIVER PROJECT NORTHERN ARIZONA UNIVERSITY INTEL
INTEGRATED BIOMOLECULE CORPORATION INTERNATIONAL GENOMICS CONSORTIUM BANK ONE
ARIZONA DEPARTMENT OF COMMERCE HIGH THROUGHPUT GENOMICS ARIZONA STATE UNIVERSITY
DMB ASSOCIATES HERBERGER ENTERPRISES ARIZONA HOSPITAL AND HEALTHCARE ASSOCIATION
PIMA COMMUNITY COLLEGE RESEARCH CORPORATION TECHNOLOGIES SCOTTSDALE HEALTHCARE
BLUE CROSS BLUE SHIELD OF ARIZONA GOVERNOR’S COUNCIL ON INNOVATION AND TECHNOLOGY MEDTRONIC
NATIONAL ASSOCIATION OF INDUSTRIAL AND OFFICE PROPERTIES ORTHOLOGIC CORP. ST. LUKE’S HEALTH INITIATIVES
COMMERCE AND ECONOMIC DEVELOPMENT COMMISSION BARROW NEUROLOGICAL INSTITUTE LEWIS & ROCA, LLP
GREATER TUCSON ECONOMIC COUNCIL GREENBERG TRAUIG, LLP ARIZONA DISEASE CONTROL RESEARCH COMMISSION
TRANSLATIONAL GENOMICS RESEARCH INSTITUTE PHOENIX UNION HIGH SCHOOL DISTRICT W.L. GORE & ASSOCIATES
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SONORA QUEST LABORATORIES NATIONAL INSTITUTE OF DIABETES AND DIGESTIVE AND KIDNEY DISEASES COMERICA
SALT RIVER PIMA-MARICOPA INDIAN COMMUNITY WELLS FARGO ARIZONA DOWNTOWN PHOENIX PARTNERSHIP
CARL T. HAYDEN VETERANS ADMINISTRATION MEDICAL CENTER ARIZONA PARTNERSHIP FOR HIGHER EDUCATION
CITY OF AVONDALE ECONOMIC DEVELOPMENT DEPT. AMERICA WEST AIRLINES ARIZONA TECHNOLOGY COUNCIL
MARICOPA COMMUNITY COLLEGES GREATER FLAGSTAFF ECONOMIC COUNCIL ARIZONA COMMUNITY FOUNDATION
FLAGSTAFF CHAMBER OF COMMERCE FLAGSTAFF REGIONAL MEDICAL CENTER SUNCOR DEVELOPMENT COMPANY
THE VIRGINIA G. PIPER CHARITABLE TRUST PINNACLE WEST CAPITAL CORP. ARIZONA HOUSE OF REPRESENTATIVES
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AVENTIS BIOINDUSTRY ORGANIZATION OF SOUTHERN ARIZONA THE KEMPER AND ETHEL MARLEY FOUNDATION
OFFICE OF THE GOVERNOR PRICEWATERHOUSECOOPERS SOUTHERN ARIZONA TECHNOLOGY COUNCIL MOTOROLA
L. ROY PAPP & ASSOCIATES CITY OF SURPRISE ECONOMIC DEVELOPMENT DEPT. VERITAS HOLDINGS ARIZONA SENATE
WESTERN MARICOPA COALITION VALLEY VENTURES II, LP SUN HEALTH RESEARCH INSTITUTE SNELL & WILMER, LLP
CREATIVE HEALTHCARE SOLUTIONS CITY OF CHANDLER ECONOMIC DEVELOPMENT DEPT. THE PLAZA COMPANIES
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BANNER HEALTH SYSTEM ARRIS VENTURES YAVAPAI COLLEGE SOLSTICE CAPITAL
MARICOPA COUNTY MARTINEZ AND CURTIS, PC MAYO CLINIC SCOTTSDALE
SALT RIVER DEVCO BHHS LEGACY FOUNDATION LEE & ASSOCIATES

ADDITIONAL INFORMATION ON ARIZONA’S BIOSCIENCE INDUSTRY AND THE FLINN FOUNDATION CAN BE FOUND AT WWW.FLINN.ORG.

» 2003 PROGRESS

UNIVERSITY RESEARCH BILL PASSES: The Arizona Legislature approves \$440 million in research facilities at the state's public universities. Major construction begins at Arizona State University and the University of Arizona, with projects planned at Northern Arizona University and in downtown Phoenix.

UNIVERSITIES JOIN FORCES: The three universities form the Arizona Biomedical Collaborative (ABC) to plan and coordinate joint efforts on education, research, and health policy. ASU and UA allocate \$27 million for a building at the new Phoenix Bioscience Center at Copper Square.

BIOSCIENCE BOOMS IN DOWNTOWN PHOENIX: An additional \$15 million pledge by the City of Phoenix spurs groundbreaking of the six-story headquarters of the Translational Genomics Research Institute (TGen), the anchor building of the Phoenix Bioscience Center at Copper Square. The facility also will house the International Genomics Consortium and related tenants. Others planning or exploring a presence on or near the campus: ABC, ASU, UA's Arizona Health Sciences Center, Maricopa Community Colleges, and a new biotech high school of the Phoenix Union High School District.

UNIVERSITY BIO INSTITUTES EMERGE: Construction begins on facilities for new bioscience institutes at ASU (Arizona Biodesign Institute) and UA (Institute for Biomedical Science and Biotechnology). Another is planned at NAU. Renowned biosciences leader George Poste is named director of ASU's Biodesign Institute.

TGEN HITS GROUND RUNNING: Barely a year into operations, TGen reports 130 employees, 70 with advanced degrees; research alliances with the state universities and numerous other institutions in Arizona and beyond; more than \$30 million in federal grants under review; development of one of the world's most powerful supercomputers through a partnership with ASU and IBM; and plans for a major lab at Mayo Clinic Scottsdale.

» 2003 PROGRESS

TECH-TRANSFER BILL PASSES: The Arizona Legislature approves a bill authorizing voters to consider a Constitutional amendment to enable universities to take equity positions in companies stemming from their scientific discoveries. The measure will be on the ballot in November 2004.

UNIVERSITY TECH-TRANSFER ENTITIES DEBUT: ASU revamps its tech-transfer operations by introducing Arizona Technology Enterprises, LLC, to enhance commercialization of technology under development. The firm also supports NAU's tech-transfer operations. The University of Arizona Foundation forms UAF Technologies and Research, LLC, to manage the development of 33 donated patents from Procter & Gamble.

ENTREPRENEURIAL PROGRAMS LAUNCHED: Three major new efforts are introduced to develop the entrepreneurial capacity of technology and life-science innovators: ASU creates Technopolis; UA forms the Arizona Center for Innovation, housed at the UA Science and Technology Park; and the Arizona Business Accelerator debuts in the Valley.

UA TECH PARK EXPANDS: The UA Science and Technology Park expands for the first time since 1994. A new, 70,000-square-foot building initiates a long-term campaign to add 1.9 million square feet, including buildings with wet-lab space. Acenta, a Washington, D.C.-based biotech firm, relocates to the park, citing its environment for innovation, available wet-lab space, and proximity to TGen.

FIRMS TAKE ROOT: Beyond TGen and IGC, 12 bioscience firms locate or expand in Arizona in FY 2003 with the assistance of the Arizona Department of Commerce and its economic development partners. The companies are expected to create up to 800 jobs over the next three years.

» 2003 PROGRESS

GOVERNOR TARGETS BIOSCIENCE: Governor Janet Napolitano creates the Governor's Council on Innovation and Technology to strengthen Arizona's knowledge-based economy. Bioscience is included among the primary sectors of interest.

PHOENIX OFFERS INVESTMENT INCENTIVES: The Phoenix New Markets Venture Capital Program offers a \$30 million investment opportunity for venture capital funds and nearly \$12 million in tax credits to investors interested in eligible life-science and technology firms. The City of Phoenix is the largest recipient nationally of New Markets Tax Credits (\$66 million) and one of only a few offering programs to attract venture capital.

MAJOR CONFERENCES COME TO ARIZONA: Prominent conferences are held in Arizona, including the first annual BioFunding Summit to pair leading scientists with investors, and two conferences of the American Association for Cancer Research – Oncogenomics and the International Conference on Frontiers in Cancer Prevention Research.

ARIZONA BIO DELEGATION MULTIPLIES: Arizona sends 38 representatives to the world's largest biotech event, BIO 2003, compared to six in 2002.

» 2003 PROGRESS

WORKFORCE STUDY RELEASED: The Battelle Memorial Institute identifies a shortage of bioscience workers trained in Arizona. Strategies are proposed to align training and education programs with the state's rapidly growing bioscience employment base. The Bioindustry Workforce Commission of the Maricopa Community Colleges oversees the study in partnership with the Arizona Department of Commerce, Pima Community College, Yavapai College, and the Flinn Foundation.

HIGHER EDUCATION ADDS BIO: New biotech education and training programs are announced at the state's three universities, the Maricopa Community Colleges, Pima Community College, and DeVry University in response to local industry growth.

BIOTECH HIGH SCHOOL PLANNED: The Phoenix Union High School District plans a selective high school specializing in biotech studies, to be located at the Phoenix Bioscience Center in downtown Phoenix. Voters approve funding as part of a district bond/override package.

INTERNET PORTAL DEBUTS: A new Web site (www.flinn.org) packages news and information on Arizona biosciences, and serves as a gateway to statewide online bioscience resources. Also, TGen adds extensive reference information to its site (www.tgen.org) to increase public understanding of genetics.