



WHERE PEOPLE & TECHNOLOGY PROSPER

**Oakland County  
Michigan**  
Emerging Sectors®



# Biotechnology

The **Catalyst** for Your Future



## Oakland County Michigan Information

- ◆ Oakland County has 46% of Michigan R&D Facilities
- ◆ Michigan ranks second in the nation in R&D spending
- ◆ Michigan companies file over 3,000 patents a year placing Michigan in the top 10 states for total number of patents granted
- ◆ Life Sciences in Michigan is a \$2 billion industry

## Organizations To Support You:

- ◆ MichBio - the state's key resource for biotech and pharmaceutical companies
- ◆ Michigan Molecular Institute
- ◆ Automation Alley - Southeast Michigan's Regional Technology Cluster
- ◆ Michigan's Technology Tri-Corridor, focusing on Life Sciences
- ◆ Beaumont Research Institute (BRI)
- ◆ Michigan Research Institute
- ◆ Center for Biological Information
- ◆ Proteome Consortium
- ◆ Center for Genomic Technologies
- ◆ Center for Structural Biology
- ◆ Michigan Animal Models Consortium
- ◆ Core Technology Alliance
- ◆ Cooks-DeVos Center for Health Sciences
- ◆ Karmanos Cancer Institute
- ◆ VanAndel Research Center

## Workforce: Educated, Innovative & Motivated

- ◆ Over 40% of Oakland County residents have college degrees (national average is about 26%)
- ◆ Oakland County has the third highest number of high-tech workers in the nation and twice the corporate R&D professionals compared to the national average
- ◆ Population of Michigan's workforce: 5.1 million
- ◆ 15 public universities, 60 independent universities and colleges, 30 community colleges statewide
- ◆ Over 96,000 college degrees are granted every year in Michigan
  - ◆ 2 ½ times the number of master's degrees were issued in Michigan than the national average
  - ◆ Over 1,800 Ph.D.s are granted in Michigan every year - almost twice the national average
- ◆ In 2006 Michigan colleges and universities granted:
  - ◆ Over 2,200 bachelor's degrees in biotechnology fields
  - ◆ 297 master's degrees in biotechnology fields
  - ◆ 194 Ph.D.s in biotechnology fields



Courtesy Beaumont Research Institute



Courtesy Beaumont Research Institute

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## Michigan Universities: Research Centers

### Central Michigan University

- ◆ Brain Research & Integrative Neuroscience (BRAIN) Center
- ◆ Bioengineering Lab

### Lawrence Technological University

- ◆ BioMedical Engineering Laboratory

### Michigan State University

- ◆ Center for Microbial Ecology
- ◆ Center for Structural Biology
- ◆ Carcinogenesis Laboratory
- ◆ Protein Expression Laboratory
- ◆ Genomic Technology Support Facility
- ◆ The Plant Research Laboratory
- ◆ Laboratory for Advanced Applications in GlycoChemistry
- ◆ Quantitative Biology & Modeling Computer Infrastructure

### Michigan Technological University

- ◆ Biotechnology Research Center
- ◆ Multi-Scale Technologies Institute (MuSTI)

### Oakland Community College

- ◆ Center for Molecular Biotechnology

### Oakland University

- ◆ Center for Biomedical Research
- ◆ Eye Research Institute

### University of Michigan

- ◆ Life Sciences Initiative (LSI)
- ◆ Molecular Biophysics Research Laboratory
- ◆ Nanotechnology Institute for Medicine and the Biological Sciences
- ◆ The Biological Station
- ◆ Center for Proteome Studies
- ◆ Center for Chemical Genomics
- ◆ Michigan Center for Biological Information (MCBI)
- ◆ Center for Sustainable Biobased Materials
- ◆ Center for Organogenesis
- ◆ Center for Human Embryonic Research
- ◆ Comprehensive Cancer Center

### Wayne State University

- ◆ Bioengineering Center
- ◆ Applied Genomics Technology Center (AGTC)
- ◆ Center For Molecular Medicine and Genetics
- ◆ Institute for Environmental Health Sciences
- ◆ Morris J. Hood Jr. Comprehensive Diabetes Research Center
- ◆ Karmanos Cancer Institute
- ◆ Kresge Eye Institute

### Western Michigan University

- ◆ Biosciences Research and Commercialization Center
  - ◆ Biological Imaging Center
  - ◆ Core Sequencing facility
  - ◆ Microarray facility
  - ◆ BL3 laboratory

**Green** - These universities are either located in Oakland County or have campuses in Oakland County

## Access to Capital

*Oakland County's Economic Development Team will help your company find potential sources of capital and financing.*

**Michigan Venture Capital Association** - Established by venture capital and private equity investors in the state, the Michigan Venture Capital Association (MVCA) is the state's premier public policy advocate for the private equity/venture capital industry. MVCA works to promote entrepreneurship and private equity investment.

**Venture Capital** - In four years alone, over \$694 million in venture capital has been invested in 101 businesses in Michigan. For new emerging technology initiatives, Michigan has created the \$150 million Venture Michigan Fund to catalyze investment in early-stage firms operating in Michigan. With the matching requirement, this initiative will attract an additional \$450 million in capital to Michigan for investment in promising new companies.

**Angel Networks** - Aimed at helping companies with early stage seed financing, Michigan is fortunate to have three active Angel Networks: The Great Lakes Angels, The Grand Angels and The Ann Arbor Angels.

**Traditional and Non-Traditional Financing** - Oakland County's Business Finance and Economic Development Corporations help companies with the SBA 504 Loan and with Tax-Exempt Revenue Bond programs. Through the Automation Alley Technology Center, emerging companies can be assisted with securing non-traditional and unique sources of financing and capital.

## Research Projects at Michigan Universities *(partial list):*

- ◆ Computer aided drug discovery
- ◆ Novel antibiotics
- ◆ Biosensors to monitor drugs
- ◆ Cell membrane studies
- ◆ Cell and molecular and structural biology
- ◆ Genetic engineering for toxic substance treatment
- ◆ Fertility and Contraception - molecular endocrinology
- ◆ Molecular approaches to tissue damage and repair
- ◆ Applied bioelectrochemistry
- ◆ Simple chemical compounds, powerful anti tumor drugs
- ◆ Novel gene with potential application in leukemia therapeutics and diagnostics
- ◆ Novel D3 receptor compounds - potential therapeutics for Parkinson's and other CNS disorders
- ◆ Prostate carcinoma cell lines for establishing an experimental metastatic prostate tumor model
- ◆ Highly effective oocyte/embryo cryopreservation medium
- ◆ Cell lines for establishing an experimental bone metastatic prostate tumor model
- ◆ Gene sequencing software
- ◆ Drug discovery and development
- ◆ Molecular oncology and genetics
- ◆ Functional genomics and genetic engineering of tree growth, defense and wood properties
- ◆ Comparative genomics of cereal crops
- ◆ Biogenesis and biochemistry of extracellular matrix polymers
- ◆ Computational disease mapping
- ◆ Population genetics
- ◆ Mechanotransduction and osteoporosis
- ◆ Injury biomechanics
- ◆ Crash safety using bioengineering
- ◆ Orthopaedic biomechanics
- ◆ Diagnosing articular joint pathologies via non-invasive, acoustical methods
- ◆ Automotive child seat safety using bioengineering
- ◆ Biomechanics of musculoskeletal function and dysfunction
- ◆ The use of geraniol synthase to produce geraniol
- ◆ Continuous multicomponent focusing in a magnetically stabilized fluidized bed
- ◆ Pluripotent mouse embryonic stem cell line
- ◆ Small RNA molecules for the inhibition of gene expression in cells
- ◆ FluMist vaccine - invented in Michigan
- ◆ Proteome research
- ◆ Endoproteases -subtilisinlike proprotein convertases (SPCs) in infectious diseases
- ◆ Development of an integrated microsystem for early breast cancer detection
- ◆ Molecular mechanisms underlying the age-related macular degeneration
- ◆ Monoclonal antibody technology core (MATC)
- ◆ Development of a model system for toxicological studies and drug screening using embryonic stem cell



Courtesy Oxford BioMedical Research



Courtesy Molecular Innovations Inc.

## Biotechnology Companies

21st Century Therapeutics  
Aastrom BioSciences  
Abbott Laboratories  
Accuri Cytometers  
Acuson  
ADMETRx  
Afid Therapeutics, Inc.  
Afmedica  
Altarum  
Antel BioSystems, Inc.  
ApoLife  
Ash Stevens  
Assay Designs  
Asterand  
Atodyne Technologies  
Auburn Pharmaceutical Company  
Avidimer Therapeutics  
AvTech Laboratories  
Beaumont Research Institute  
Bio Coat, Inc.  
Biodiscovery LLC  
Biogen, Inc.  
Bio Nano  
Biomedical Diagnostics  
BioMedware  
Biomide  
Biomim Inc.  
Biophotonic Solutions Inc.  
BioPolymer Innovations  
Biotech Clinical Laboratories Inc.  
BioVant Systems  
Bridge Organics Co.  
Caraco Pharmaceuticals  
Cell Culture Characterization Services  
Cerenis Therapeutics  
CNVGenes, Inc.  
Cognitive Pharmaceuticals  
Computational Biosciences Inc.  
Conceivex  
Corium International  
Crissman Toxicologic Pathology  
Custom Biogenic Systems  
Delphi Medical Systems  
Dendritech, Inc.  
Dendritic Nanotechnologies  
Detroit R&D  
Dow Chemical Co.  
DNA Software  
Emerald BioAgriculture Corp.  
Emergent BioSolutions  
Esperion Therapeutics

Essen Instruments  
EyeLab Group  
Farnell Equipment Co.  
Fermical Inc.  
Ferndale Laboratories  
Gene Codes Corp.  
Gene Expressions (ASC)  
GeneGo  
Genesis Pharmaceutical Inc.  
Genetics Squared  
Genomic Solutions  
Graminex  
Handy Lab  
Hinsbar Laboratories  
Hoffman-LaRoche  
Housey Pharmaceuticals In.  
i3 STRATPROBE  
IA Inc.  
Incept BioSystems  
Innovative BioTherapies, Inc.  
Innovative Research, Inc.  
Insight Sciences  
Integrated Sensing Systems (ISSYS)  
JHP Pharmaceuticals  
Kalixsyn Medicinal Chemistry  
Karmanos Cancer Institute  
King Pharmaceuticals Inc.  
Koppert Biological Systems  
Lumigen  
Mainline Technology  
Major Pharmaceuticals  
Materialize Software  
MC3  
Michigan Diagnostics  
Microbiological Associates  
MicroChannel Technologies  
Microcide  
MicroDose Life Sciences  
Molecular Innovations Inc.  
Molecular Therapeutics  
Monal Labs Inc.  
MPI Research  
MultiGEN Diagnostics  
NanoBio Corp.  
Nanoderm Therapeutics, Inc.  
NanoMed Pharmaceuticals  
Naturopathic Chemical Lab  
Neogen Corp.  
NephRx Corp.  
NeuroNexus Technologies  
Nitrate Elimination Co. (NECi)  
Northern Biomedical Research, Inc.

NovoDynamics  
Originus Inc.  
Ortho-McNeil Pharmaceuticals  
OtoMedicine, Inc.  
Oxford Biomedical Research  
Painex Corporation  
Pall Corporation - Life Sciences  
Patmos FEA Consulting  
Perrigo Co.  
Pfizer Global R&D Center  
PharmOptima  
Picometrix  
Plas-Labs Inc.  
Pointe Scientific  
ProNAi Therapeutics  
ProPharma  
Proteomic Research Services  
Proteos  
QUATRx Pharmaceuticals  
Quest Research Institute  
Quintiles  
Regulatory Affairs Associates  
Riverside Organics  
Roche Laboratories Inc.  
Rubicon Genomics  
Sandab Group  
Schering Plough  
Sensicore  
SensiGEN  
Sonetics Ultrasound  
SSV Therapeutics  
SubTerra  
Sun Pharmaceutical Industries  
Tantamount Associates  
TERRE Clinical Research Services  
The Center for Gene Therapy  
The Toxicology Group  
Therasonics  
Thromgen  
Unitech Pharmaceuticals  
Van Andel Research Institute  
Vectech Pharmaceutical  
VelCura Therapeutics  
VetGEN  
Virotech Co.  
Vortech Pharmaceutical  
Wacker Chemical Corp.  
Warde Medical Laboratory  
Western Slope Laboratory

**Green** - Oakland County Companies  
**Blue** - Southeast Michigan Companies  
**Black** - Michigan Companies

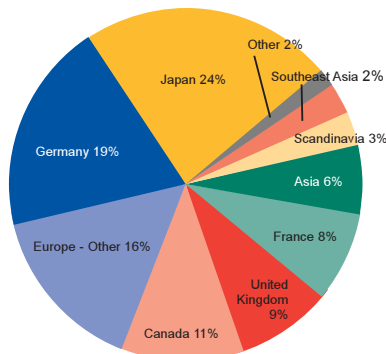
## Oakland County Can Help Your Business

The Economic Development Team offers assistance in:

- ◆ Site location
- ◆ Financing
- ◆ Tax Incentives
- ◆ Liaison with state and local agencies
- ◆ Workforce development
- ◆ Business Assistance Center (business consulting)
- ◆ Information products - to ensure you make the right decision for your company's location

## Oakland County is an International Hub

Foreign firms make the strategic decision to locate in Oakland County because of the highly skilled workforce, strong educational systems and the international support services available to them.



- ◆ More than 700 foreign-owned firms from 33 countries - with more than 900 business locations - are located in Oakland County
- ◆ For the past decade, the Oakland County Business Development Team has helped an average of nearly two foreign firms a month locate here
- ◆ Oakland County International Airport is one of the busiest corporate airports in the United States, with more than half a million passengers and pilots passing through each year



**L. Brooks Patterson,**  
*Oakland County Executive*

*With the support of  
The Oakland County Board  
of Commissioners*

## Oakland County is Strategically Located



- ◆ Centrally located between Chicago, Toronto and Cleveland, Oakland County is strategically positioned to capture the entire Midwest market
- ◆ The Michigan-Ontario border is the busiest U.S.-Canada crossing in the country, making this area an ideal location to reach the United States and the Canadian markets. Ontario, less than an hour's drive from Oakland County, generates some 40% of Canada's total gross domestic product



**Contact us today for more information:**

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