

Alberta Innovates
Alberta Research and Innovation Authority



New Vision for Health Research: Realigning Science, Technology & Innovation Systems

IHE INNOVATION FORUM
April 21, 2010
Edmonton, AB




Alberta
Proud to be the heart of the nation

Funded by the Government of Alberta

OUR ALBERTA



OUR ALBERTA



- Aboriginal peoples have lived on Alberta soil for ~17,000 years
- Provincial status 1905 – Liberal's governed until 1921
- Social Credit rose to power in 1935 — 1971
- 1971 to present: Progressive Conservative
- Change from agriculture economy to energy: 1947 Leduc #1 “blows in”
- Population 3.6 million: rate of growth 2x national average
 - ~49% European extraction
 - ~14% Visible minorities (mainly Chinese & South Asian)
 - ~ 6% Aboriginal

OUR ALBERTA



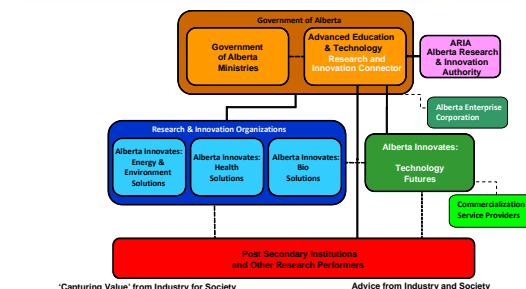
- Education expenditures \$2,558 per capita: national av. \$1,798
- Highest weekly earnings \$973.61 – national av. \$820.95
- Second highest in per capita health care spending \$3,857
 - ~36% of GoA expenditures
- Total Research Investment/Expenditures ~\$250M/yr
 - >50% is health and life sciences related
- Like rest of Canada, underperformance of industry based R&D
- Gross Domestic Product ~70% above the rest of Canada
- Health research “boom” beginning with AHFMR early 80s: ~\$1B invested

Alberta Innovates Core Strategies

- **Leadership**
 - DEMONSTRATE & MODEL LEADERSHIP – A Culture of Trust
 - **Develop, retain and attract world-class people**
- **Open Innovation**
 - Facilitate knowledge, intellectual property and skill transfer
- **Research Capacity**
 - Enhance research capacity through an **integrated** approach
- **Focus**
 - Invest in a limited areas where Alberta has “**jurisdictional advantage**”
- **Bringing Technology to Market**
 - Entrepreneurism, commercialization, product development, **best practices**



Bill 27: Alberta Research & Innovation Act



Connector Service

- One-window (“*concierge*”) approach to accessing Alberta’s research and innovation community”
- Currently based at AET, Mel Wong’s “shop”.
- A helping hand to guide through and link to Alberta’s research and innovation network.
 - System Intelligence: information about resources, programs and services
 - Referrals to key contacts in the research and innovation system
 - Guidance and support

<http://www.albertainnovates.ca/connector>



ARIA Roles & Mandate

- Provide policy & strategy advice to the Minister AET and Government of Alberta “50K level”.
- Collect information on other jurisdictions with comparative research and innovation systems.
- Provide advice on opportunities for Alberta.
- Conduct futures studies and market based scans.
- Maintain a long-term vision (30 years) with recommendations that form objectives within 5 and 10 year cycles.



ARIA Board of Directors

Helena Acheson	Forfas	Ireland
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AHFMR is Dead!??

- CEO: Jacques Magnan
- ~\$1.5B endowment still in play
- Current AHFMR personnel covered for minimum 1-2 years
- TEAM grants continue
- New Strategy development to be completed Q3 2010
 - Balanced portfolio of Pillars I – IV research
- Alignment and synergy with AHS/GoA Health Research Strategy



Principles Transition Business Plan

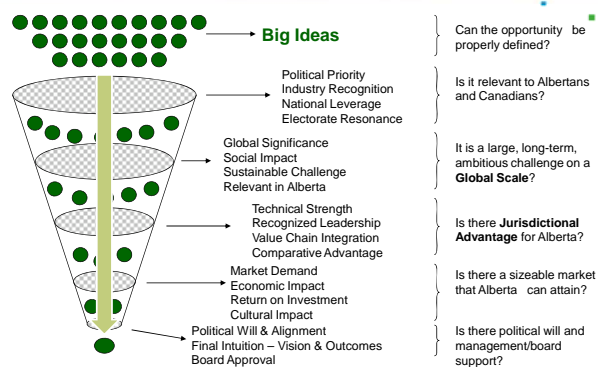
- HQP: Strategic & Focused Recruiting
- Targeted Trainee Support
- Competitive Operating Research Grants
- Contract Research
- Linkage & Network Support
- Platforms & Infrastructure Support
- Opportunity Development Support (KT)
- Communication, Education & Outreach



Alberta's Menu of BIG IDEAS

- Solar Energy
- S.O. Fuel Cells
- Fusion Technologies
- Bio-Fuel Technologies
- Clean Carbon Technologies
- Manufacturing Efficiency
- BioMedical Engineering
- Beef Value Chain Genomics
- Intra-Operative Imaging Technologies
- Industrial Produced Water
- Omics Platform Technologies
- Nanotechnology & Nanomaterials
- Integrated Resource Imaging
- Applied Networking & Communications
- Space Science & Astrophysics
- BioAnalytical Instrumentation
- Building Products
- Value Added Forest Products
- Energy Technologies
- Value Added Energy
- Systems Biology
- Environmental Technologies
- Novel Health Care Delivery Models
- Industrial BioRefining
- Food for Health
- Bitumen Upgrading
- Improved In Situ Recovery
- Renewable & Alternative Energy
- Carbon Dioxide Management
- CO2 Capture and Storage
- Gasification
- Personalized Medicine
- Hydrogen Production
- Silver NanoDots
- Water Treatment & Recovery
- Carbonates
- Coal Gasification
- Nuclear Power
- Fiber Conversion Technologies
- Integrated Resource Management
- Prion & Transmissible Encephalopathy
- Genomics, Metagenomics
- Metabolomics
- Diabetes, Cancer, Mental Health
- Health & Human Performance
- Carbohydrate Science

Innovation Filters



Alberta's S&T Future ?

- Energy & the Environment
 - Carbon Capture, Water
- Nutrition & Human Health
- Biomedical Engineering
- Nanotechnology & Nanomaterials
- Mental Health & Addiction
- Personalized Medicine
 - Genomics including epigenetics
 - Proteomics/Metabolomics, etc.

We are not all the same!



From Sports Illustrated

Personalized Medicine aka

- Individualized Medicine (Mayo)
- Designer Medicine
- Molecular Medicine
- Companion Medicine
- P4 Medicine
 - Predictive, Preventive, Personalized, Participatory
- Theranostics
 - Diagnostics/Therapeutics Partnering
- Translational Genomics



Skeptics abound: A Few Examples of PM

- **Predictive — Preventative**
 - BRCA1/BRCA2 — mastectomy/ovarectomy??
 - SNP for CytP450/VKORC1 — warfarin dosing
 - CYPs — neuroleptic medications
- **Targeted**
 - HER2 and HER2 receptor — Herceptin
 - BCR-ABL — Gleevec (95% of CML)
- **MRD (minimal residual disease):**
detect disease with molecular markers before it clinically returns.



PERSONALIZED MEDICINE

THE BOTTOM LINE
Will it bring VALUE?

$$\text{Value} = \frac{\text{COST}}{\text{OUTCOMES}}$$

What is innovation? Avoid myopia



Bev Doolittle: Artist Collection