Special Committee on Academic Medicine

May 2014

May 08, 2014

8:00 - 9:30 a.m.

West Committee Room, McNamara Alumni Center
1. Academic Health Center Research; Overview and Update

   Docket Item Summary - Page 3
   Focus on Health Research - Page 5
   Presentation Materials - Page 40
Special Committee on Academic Medicine  

Agenda Item: Academic Health Center Research: Overview & Update

☐ Review  ☐ Review + Action  ☐ Action  x Discussion

☐ This is a report required by Board policy.

Presenters: Brooks Jackson, Dean, Medical School and Vice President for Health Sciences  
Gunda Georg, Professor and Head, Department of Medicinal Chemistry, and Director, Institute for Therapeutics Discovery and Development, College of Pharmacy  
Timothy Schacker, Professor of Medicine and Director of the Infectious Disease Clinic, Medical School  
Jakub Tolar, Associate Professor of Pediatrics, Director of the University of Minnesota’s Stem Cell Institute, Medical School  
James Neaton, Professor of Biostatistics, School of Public Health  
Lynn Blewett, Professor, Division of Health Policy and Management, School of Public Health and Director, State Health Access Data Assistance Center (SHADAC)

Purpose & Key Points:

The University of Minnesota is among the nation’s top health research institutions. Overall, the University is ranked 18th in external health research funding and seventh among public universities.

Health research in Minnesota and nationally faces enormous challenges and is undergoing fundamental change in response to the changing health research environment and ever-tighter fiscal resources. The University of Minnesota, with its top ranked health professional schools and long history of innovation, is well-poised for the future. It is a national leader in interdisciplinary research and team science – the future of health research in this country and internationally.

The presentation will provide an overview of the University’s health research, including a brief tutorial on the breadth of University health sciences research, our strengths, how health research is funded, the changing nature of health research, our national rankings and peers, the increasing competition among Universities for research funding, and areas of potential future investment and strategic actions. We will also showcase examples of outstanding health research underway at the University.
The principal policy issue facing the University is: How can the University of Minnesota build on its current strengths and further enhance its national and international stature in health research? How do we:

- Compete effectively for external funding in an era of declining federal support?
- Make strategic investments in critical research infrastructure and signature programs?
- Retain and attract talented researchers (both faculty and staff)?
- Enhance and incentivize outstanding scholarship by our faculty?
- Speed the translation of research discoveries into common practice?

**Background Information**

The initial meeting of the Special Committee on Academic Medicine in October focused on a general overview of University’s health sciences schools and programs, academic medicine, and the University's clinical programs. The committee’s December meeting focused on health professional education. In March, the Board of Regents visited the Academic Health Center to meet with faculty and students, and to hear presentations and see demonstrations on health professional education and training.
Board of Regents
Special Committee on Academic Medicine

Focus on Health Research
May 8, 2014
Innovative expertise in education and research leading to better health and vital economy in Minnesota.

**Academic Health Center**

**Meeting Expectations:**
- 70% of all health professionals working in Minnesota trained at the University

**Leading work in:**
- diabetes
- infectious diseases
- neuroscience
- cancer
- cardiovascular research

**Global impact in prevention and health improvement:**
- 970,000 human and animal patient visits
- 1,700 educational rotations in Minnesota

**Through our:**
- Schools and Colleges
- Centers and Institutes
- Clinics and Hospitals

**In Disciplines of:**
- Dentistry
- Medicine
- Nursing
- Pharmacy
- Public Health
- Veterinary Medicine

**Driving Initiatives in:**
- Education
- Research
- Clinical/Outreach

University of Minnesota
Driven to Discover
Strategic Policy Questions

How can the University build on its current strengths and further enhance its national and international stature in health research? How do we:

- Compete effectively for external funding in an era of declining federal support?
- Make strategic investments in critical research infrastructure and signature programs?
- Retain and attract talented researchers (both faculty and staff)?
- Enhance and incentivize outstanding research scholarship by our faculty?
- Speed the translation of research discoveries into common practice?
Today’s Presentation

• Overview of the University’s health research:
  – Breadth of University health sciences research
  – How health research is funded
  – Our strengths
  – Our national rankings and peers
  – The changing nature of health research
  – The increasing competition among Universities for research funding
  – Areas of potential future investment and strategic action

• Showcase examples of outstanding health research underway at the University
OVERVIEW
The Range of Health Research

- Basic
- Translational
- Clinical
- Population
- Patient outcomes and health care delivery
- Policy
What Characterizes Health Research?

• Highly competitive funding environment
• Peer reviewed
• Highly regulated
• Expensive: Faculty, staff, facilities and equipment
• Long timeline from initial idea to proof to adoption in practice
• Rigorous scientific method required for proof
• Many dead ends and failures
HEALTH RESEARCH FUNDING
How is Health Research Funded at the University?

- Competitive grants and contracts
- Indirect cost recovery on grants and contracts
- State appropriations
- Clinical revenues
- Gifts and endowments
- Business and industry contracts
- Royalties and licensing fees
Total AHC Research (Sponsored and Non-Sponsored) for FY13 - $393.4M

*Note: Non-sponsored research is typically funded by gifts, endowment earnings, clinical revenues, and state appropriations. Non-sponsored research is characterized as "Departmental Research" in the University accounting system.*
Research Expenditures (Sponsored and Non-Sponsored) for FY13 - $393.4M

* Note: Non-sponsored research is typically funded by gifts, endowment earnings, clinical revenues, and state appropriations. Non-sponsored research is characterized as "Departmental Research" in the University accounting system.
Total University Sponsored Expenditures (AHC and Non-AHC) FY13 - $721.6M

- AHC: $378,729 (52%)
- Non-AHC: $342,861 (48%)
### AHC Sponsored Research Expenditures FY 2013 in Millions

<table>
<thead>
<tr>
<th>School or Unit</th>
<th>Expenditure</th>
<th>% of University Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical School</td>
<td>$188,383</td>
<td>26.0%</td>
</tr>
<tr>
<td>School of Public Health</td>
<td>$86,495</td>
<td>12.0%</td>
</tr>
<tr>
<td>AHC Centers</td>
<td>$62,806</td>
<td>9.0%</td>
</tr>
<tr>
<td>College of Veterinary Medicine</td>
<td>$14,868</td>
<td>2.0%</td>
</tr>
<tr>
<td>College of Pharmacy</td>
<td>$13,870</td>
<td>2.0%</td>
</tr>
<tr>
<td>School of Dentistry</td>
<td>$8,513</td>
<td>1.0%</td>
</tr>
<tr>
<td>School of Nursing</td>
<td>$3,863</td>
<td>0.5%</td>
</tr>
<tr>
<td>AHC Total</td>
<td>$378,798</td>
<td>52.5%</td>
</tr>
<tr>
<td>University Total</td>
<td>$721,590</td>
<td></td>
</tr>
</tbody>
</table>
AHC Sponsored Expenditures FY13 - $378.7M

- Medical School, $188,383 - 50%
- School of Public Health, $86,495 - 23%
- College of Veterinary Medicine, $14,868 - 4%
- College of Pharmacy, $13,870 - 4%
- School of Dentistry, $8,513 - 2%
- School of Nursing, $3,863 - 1%
- AHC Shared Units, $62,737 - 16%
Sponsors of Health Research and Training in the AHC
FY13 - $378.7M

- HHS (NIH, HRSA, Other)
- NSF
- Other Federal Agencies
- State of MN
- Other Govt Agencies
- Business & Industry
- Foundations & Other Private

$57,964,661
$29,259,743
$740,098
$13,999,657
$17,094,839
$3,056,618
$256,613,792

$378.7M
HEALTH RESEARCH STRENGTHS, RANKINGS and PEERS
## Top Health Research Strengths

<table>
<thead>
<tr>
<th>School of Dentistry</th>
<th>Medical School</th>
<th>School of Nursing</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Biomaterials</td>
<td>• Cancer</td>
<td>• Vulnerable populations and health disparities</td>
</tr>
<tr>
<td>• Bone biology</td>
<td>• Neurological disease</td>
<td>• Prevention and management of chronic conditions</td>
</tr>
<tr>
<td>• Infection and inflammation</td>
<td>• Cardiovascular</td>
<td>• Symptom management</td>
</tr>
<tr>
<td>• Neuroscience and pain</td>
<td>• Diabetes/obesity</td>
<td>• Informatics and health innovation</td>
</tr>
<tr>
<td>• Virology</td>
<td>• Infectious diseases</td>
<td></td>
</tr>
</tbody>
</table>

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**University of Minnesota**

**Driven to Discover**
# Top Health Research Strengths

<table>
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<tr>
<th>College of Pharmacy</th>
<th>School of Public Health</th>
<th>College of Veterinary Medicine</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Infectious disease</td>
<td>• Community health and chronic/infectious disease prevention</td>
<td>• Food safety and security</td>
</tr>
<tr>
<td>• Brain disorders</td>
<td>• Biostatistical methods</td>
<td>• Emerging and zoonotic infectious diseases</td>
</tr>
<tr>
<td>• Personalized medicine</td>
<td>• Occupational and environmental health</td>
<td>• Ecosystem health with focus on wildlife and environment</td>
</tr>
<tr>
<td>• Drug discovery and development</td>
<td>• Food systems, health and safety</td>
<td>• Animal health and comparative medicine</td>
</tr>
<tr>
<td>• Cancer</td>
<td>• Aging and long-term care</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Health economics, systems and public policy</td>
<td></td>
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</tbody>
</table>
## What Are Our NIH Research Rankings?

<table>
<thead>
<tr>
<th>Ranking</th>
<th># of Organizations</th>
<th>School</th>
<th>Total NIH Awards</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>46</td>
<td>School of Dentistry</td>
<td>$5,946,968</td>
</tr>
<tr>
<td>26</td>
<td>138</td>
<td>Medical School</td>
<td>$147,393,646</td>
</tr>
<tr>
<td>15</td>
<td>75</td>
<td>School of Nursing</td>
<td>$2,587,683</td>
</tr>
<tr>
<td>14</td>
<td>72</td>
<td>School of Pharmacy</td>
<td>$5,554,902</td>
</tr>
<tr>
<td>5</td>
<td>58</td>
<td>School of Public Health</td>
<td>$48,901,542</td>
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<tr>
<td>13</td>
<td>28</td>
<td>College of Veterinary Medicine</td>
<td>$3,875,705</td>
</tr>
<tr>
<td>18</td>
<td>2336</td>
<td>University of Minnesota</td>
<td>$255,242,614</td>
</tr>
</tbody>
</table>

All data from the Blue Ridge Institute for Medical Research (January 7, 2014)
### Who Are Our Peers? Medical Schools

<table>
<thead>
<tr>
<th>Rank</th>
<th>Institution</th>
<th>Award</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>University of California San Francisco</td>
<td>$441,674,083</td>
</tr>
<tr>
<td>2</td>
<td>Johns Hopkins University</td>
<td>$404,918,256</td>
</tr>
<tr>
<td>3</td>
<td>University of Pennsylvania</td>
<td>$379,380,010</td>
</tr>
<tr>
<td>4</td>
<td>Stanford University</td>
<td>$314,801,445</td>
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<tr>
<td>5</td>
<td>Yale University</td>
<td>$311,824,870</td>
</tr>
<tr>
<td>6</td>
<td>Washington University</td>
<td>$289,483,750</td>
</tr>
<tr>
<td>7</td>
<td>University of Pittsburgh at Pittsburgh</td>
<td>$297,016,461</td>
</tr>
<tr>
<td>8</td>
<td>University of Washington</td>
<td>$293,161,597</td>
</tr>
<tr>
<td>9</td>
<td>Vanderbilt University Medical Center</td>
<td>$292,413,440</td>
</tr>
<tr>
<td>10</td>
<td>Duke University</td>
<td>$284,982,977</td>
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<tr>
<td>11</td>
<td>University of Michigan</td>
<td>$284,397,726</td>
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<tr>
<td>12</td>
<td>University of California San Diego</td>
<td>$278,737,550</td>
</tr>
<tr>
<td>13</td>
<td>University of California Los Angeles</td>
<td>$263,344,077</td>
</tr>
<tr>
<td>14</td>
<td>University of North Carolina Chapel Hill</td>
<td>$255,579,763</td>
</tr>
<tr>
<td>15</td>
<td>Columbia University Health Sciences</td>
<td>$242,827,012</td>
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<td>16</td>
<td>Emory University</td>
<td>$212,194,271</td>
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<td>17</td>
<td>Mount Sinai School of Medicine</td>
<td>$197,480,383</td>
</tr>
<tr>
<td>18</td>
<td>Mayo Medical School</td>
<td>$188,813,250</td>
</tr>
<tr>
<td>19</td>
<td>Baylor College of Medicine</td>
<td>$178,214,625</td>
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<tr>
<td>20</td>
<td>Oregon Health &amp; Science University</td>
<td>$174,622,148</td>
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<tr>
<td>21</td>
<td>New York University School of Medicine</td>
<td>$173,094,951</td>
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<tr>
<td>22</td>
<td>Northwestern University</td>
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<td>23</td>
<td>Harvard University</td>
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<tr>
<td>24</td>
<td>University of Colorado Denver</td>
<td>$162,763,023</td>
</tr>
<tr>
<td>25</td>
<td>Albert Einstein College of Medicine</td>
<td>$155,576,356</td>
</tr>
<tr>
<td>26</td>
<td><strong>University of Minnesota</strong></td>
<td><strong>$147,393,646</strong></td>
</tr>
<tr>
<td>27</td>
<td>Case Western Reserve University</td>
<td>$146,766,857</td>
</tr>
<tr>
<td>28</td>
<td>UT Southwestern Medical Center</td>
<td>$145,587,715</td>
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<td>29</td>
<td>University of Chicago</td>
<td>$144,701,214</td>
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<tr>
<td>30</td>
<td>University of Wisconsin-Madison</td>
<td>$138,918,105</td>
</tr>
<tr>
<td>31</td>
<td>University of Alabama at Birmingham</td>
<td>$132,915,974</td>
</tr>
<tr>
<td>32</td>
<td>University of Rochester</td>
<td>$123,966,926</td>
</tr>
</tbody>
</table>

*All data from the Blue Ridge Institute for Medical Research (January 7, 2014)*
### Who Are Our Peers? Top 25 Institutions

<table>
<thead>
<tr>
<th>Rank</th>
<th>Institution</th>
<th>Award</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Johns Hopkins University</td>
<td>$558,187,054</td>
</tr>
<tr>
<td>2</td>
<td>University of California San Francisco</td>
<td>$501,656,900</td>
</tr>
<tr>
<td>3</td>
<td>University of Pennsylvania</td>
<td>$445,860,901</td>
</tr>
<tr>
<td>4</td>
<td>University of Washington</td>
<td>$428,421,578</td>
</tr>
<tr>
<td>5</td>
<td>University of Michigan</td>
<td>$407,754,677</td>
</tr>
<tr>
<td>6</td>
<td>University of Pittsburgh at Pittsburgh</td>
<td>$396,728,993</td>
</tr>
<tr>
<td>7</td>
<td>University of North Carolina Chapel Hill</td>
<td>$371,346,593</td>
</tr>
<tr>
<td>8</td>
<td>University of California San Diego</td>
<td>$362,004,733</td>
</tr>
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<td>9</td>
<td>Stanford University</td>
<td>$352,778,686</td>
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<td>10</td>
<td>Yale University</td>
<td>$343,084,912</td>
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<tr>
<td>11</td>
<td>University of California Los Angeles</td>
<td>$333,730,649</td>
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<tr>
<td>12</td>
<td>Duke University</td>
<td>$329,156,379</td>
</tr>
<tr>
<td>13</td>
<td>Massachusetts General Hospital</td>
<td>$323,961,795</td>
</tr>
<tr>
<td>14</td>
<td>Washington University</td>
<td>$320,095,672</td>
</tr>
<tr>
<td>15</td>
<td>Brigham and Women’s Hospital</td>
<td>$313,140,019</td>
</tr>
<tr>
<td>16</td>
<td>Columbia University Health Sciences</td>
<td>$303,365,418</td>
</tr>
<tr>
<td>17</td>
<td>Vanderbilt University Medical Center</td>
<td>$301,407,251</td>
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<td>18</td>
<td>University of Minnesota</td>
<td>$255,242,614</td>
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<td>Emory University</td>
<td>$253,226,081</td>
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<td>20</td>
<td>University of Wisconsin-Madison</td>
<td>$237,664,938</td>
</tr>
<tr>
<td>21</td>
<td>Scripps Research Institute</td>
<td>$198,275,639</td>
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<td>22</td>
<td>Mount Sinai School of Medicine</td>
<td>$197,480,383</td>
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<td>Oregon Health &amp; Science University</td>
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<td>24</td>
<td>Mayo Clinic Rochester</td>
<td>$188,813,250</td>
</tr>
<tr>
<td>25</td>
<td>Harvard University</td>
<td>$185,223,961</td>
</tr>
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All data from the Blue Ridge Institute for Medical Research (January 7, 2014)
CHANGING RESEARCH ENVIRONMENT
Overall Decrease in NIH Funding

• Adjusted for inflation, the NIH budget decreased by $6 billion (22.4 %) from FY 2003 to FY 2013

• The number of competing research project grants has also fallen sharply
  – FY 2003: NIH awarded 10,393 grants
  – FY 2013: NIH made 8,283 grants (20.3 % decrease)

• Awards for investigator initiated grants suffered even greater losses
  – Grants fell by 2,528 (34 %) between 2003 and 2013
Number of NIH Research Applications and Funding Success Rates (1998 - 2011)

Success Rate of Grants Funded

Number of Applications

- Success Rate
- Applications

Percentage and Application Data:
- 1998: 31.1%
- 17.7%
Trends in Health Research

- Interdisciplinary
- Team-based
- Multi-institutional
- Global
- Informatics and big data
- Genomics and personalized medicine
- Greater emphasis on reducing time from research to adoption
What are Minnesota’s Strengths in this Changing Research World?

- One of the most comprehensive AHC’s in the nation
- History of strong interdisciplinary research
- Programs and centers of national strength
- Investments in research facilities: Bd2
- Investments in research infrastructure:
  - CTSI
  - RAR
  - Genomics
  - CMRR
Examples of Health Research at the University

- **Gunda Georg, College of Pharmacy** – drug discovery
- **Timothy Schacker, Medical School** – clinical and translational research
- **Jakub Tolar, Medical School** – regenerative medicine
- **James Neaton, School of Public Health** – epidemiological research
- **Lynn Blewett, School of Public Health** – public policy
FUTURE STRATEGIC ACTION
# Future Health Research Investment Priorities

<table>
<thead>
<tr>
<th>School of Dentistry</th>
<th>Medical School</th>
<th>School of Nursing</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Biomaterials</td>
<td>• Cancer</td>
<td>• Health promotion among vulnerable populations, including health disparities</td>
</tr>
<tr>
<td>• Bone biology</td>
<td>• Neurological disease</td>
<td>• Prevention and management of chronic conditions</td>
</tr>
<tr>
<td>• Health disparities and public health</td>
<td>• Cardiovascular</td>
<td>• Symptom management (improve quality of life and end of life)</td>
</tr>
<tr>
<td>• Infection and inflammation</td>
<td>• Diabetes/obesity</td>
<td>• Informatics and health innovation</td>
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</table>
### Future Health Research Investment Priorities

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<th>School of Public Health</th>
<th>College of Veterinary Medicine</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Nanotechnology and drug formulation</td>
<td>• Community and population approaches to mental health</td>
<td>• Comparative medicine</td>
</tr>
<tr>
<td>• Health disparities and indigenous community health</td>
<td>• Infectious disease research</td>
<td>• Molecular/genetic models of animal disease</td>
</tr>
<tr>
<td>• Health informatics</td>
<td>• Women’s health research</td>
<td>• Emerging and zoonotic infectious diseases</td>
</tr>
<tr>
<td>• Models of pharmacy practice in new health care system</td>
<td>• Machine learning and big data analysis methods</td>
<td>• Livestock health</td>
</tr>
<tr>
<td>• Health care policy and politics</td>
<td>• Exposure/exposome science</td>
<td>• Ecosystem health</td>
</tr>
<tr>
<td></td>
<td>• Healthy aging</td>
<td>• Global food systems</td>
</tr>
</tbody>
</table>
# AHC-Wide Health Research Priorities

<table>
<thead>
<tr>
<th>Programmatic Areas</th>
<th>Research Infrastructure</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Cancer</td>
<td>• Biomedical/Health Informatics</td>
</tr>
<tr>
<td>• Neurological disease</td>
<td>• Patient outcomes research and projects</td>
</tr>
<tr>
<td>• Cardiovascular</td>
<td>• Global health outcomes</td>
</tr>
<tr>
<td>• Diabetes/Obesity</td>
<td>• Clinical genomics and proteomics</td>
</tr>
<tr>
<td>• Infectious disease</td>
<td></td>
</tr>
</tbody>
</table>
What Strategic Actions Do We Need to Take?  
(1 of 2)

- Renewed emphasis on scholarship
- Strengthening faculty mentoring programs
- Fostering and supporting team science
- Recruiting talented researchers through cluster hires in strategic priority areas
- Increased commitment by researchers to apply for grants
- Aligning incentives for faculty, department chairs, and deans
What Strategic Actions Do We Need to Take? (2 of 2)

• Optimizing the co-location of investigators
• Expanding patient outcomes/clinical trials research
• Expanding international research
• Speeding the translation of research into clinical practice
• Strengthening partnerships with industry
• Increased philanthropy for research programs and endowed chairs
AHC Health Research:
Case Studies in Research Excellence

Board of Regents
Special Committee on Academic Medicine
May 8, 2014
Health Research at the University

• **Gunda Georg, College of Pharmacy** – drug discovery

• **Timothy Schacker, Medical School** – clinical and translational research

• **Jakub Tolar, Medical School** – regenerative medicine

• **James Neaton, School of Public Health** – epidemiological research

• **Lynn Blewett, School of Public Health** – public policy
The Academic Drug Discovery Community

- 83 academic drug discovery centers
- NIH CTSI and NCATS (National Center for Accelerating Translational Science)
- Philanthropic support
- Academic-industry alliances
- Business challenges for industry: $1-2 billion for drug development, 15-20 years, time, 95% failures
The UM Institute for Therapeutics Discovery and Development (ITDD)

**What:** Create opportunities for drug discovery and early preclinical drug development while educating the next generation of drug discoverers.

**How:** Through interdisciplinary research collaborations between various individual researchers, schools, colleges, research centers, universities, NIH, CTSIs, and private companies.
NCI/CBC

The Chemical Biology Consortium

- Sanford-Burnham Center for Chemical Genomics
- Emory Chemical Biology Discovery Center
- Fragment Discovery Center at the University of California-San Francisco
- Georgetown University Medical Center
- The NIH Chemical Genomics Center
- North Carolina Comprehensive Chemical Biology Center
- Southern Research Institute
- SRI International
- The University of Minnesota Chemical Diversity Center
- The University of Pittsburgh Chemical Diversity Center
- University of Pittsburgh Specialized Applications Center
- Vanderbilt Chemical Diversity Center

academic + non-profit research + NCI labs = A new drug discovery platform
Contraceptive Drug Discovery
University of Minnesota

Collaborators:
Amory: UW
Blanco: KUMC
Bradner: Harvard MS
Clapham: Harvard MS
Herr: UV-HS
Jensen: OHSU
Kinzy: Rutgers
Lee: NICHD
Lonard: Baylor CoM
Matzuk: Baylor CoM
Tash: KUMC
Schönbrunn: Moffit
Terada: U of Florida
Wolgemuth: Columbia U
Zelinski: ONPR

Funding from NICHD 2013-2018 $12.7 M
Drug Discovery and Synthesis of Contraceptive Agents
Minnelide

- Minnelide, an anticancer agent licensed to Minneamrita LLC
- Minnelide clinical trial started in 2013

Discovery: Saluja (Surgery), ITDD, CTM, CTSI, Pharmacy
Clinical trial: Van Hoff (tgen), Greeno (UoM)
Translational Research on HIV/AIDS

Timothy Schacker, M.D.
Professor of Medicine
HIV/AIDS

• 35 million people infected
• <5% have access to therapy
• Current therapy does not cure the infection
• Immunity is not restored with current therapy
Diagram of a lymph node:

- Subcapsular Sinus
- Germinal Center
- Fibrous Capsule
- Hilum
- Afferent Lymphatics
- Lobules
- Efferent Lymphatic
- T Cell Zone

Image of lymphatic tissue.
HIV RNA In Infected Cells

Paracortex

Germinal Center

HIV RNA In Virions
Subject 1675: Rectum
PVL < 50 copies/ml
ART > 5yrs
Decreased intracellular drug concentration in lymphatic tissues
Decay of virus from the FDCn
Summary

• Current drugs for HIV do not completely suppress HIV replication
• This is because the drugs do not concentrate in tissues where the virus replicates
• We need to overcome this pharmacological barrier if we hope to cure the infection
UMN Regenerative Medicine: From Ideas to Clinical Practice

Jakub Tolar, M.D., Ph.D.
Blood and Marrow Transplant
UMN Children's Hospital
Department of Pediatrics
University of Minnesota
Using Transplant to Regenerate Skin

Skin VELCRO
Stem Cells: Grow Your Own

1. Human Skin/Fat/Blood
2. Transcription Factors
3. Weeks of factor induction
4. Embryonic-like stem cells
5. Induced pluripotent stem (iPS) cells
6. Self renewal produces infinite supply of patient-matched cells

- Ectoderm
  - Skin
  - Brain
  - Nerve

- Mesoderm
  - Blood
  - Heart
  - Kidney
  - Muscle
  - Bone

- Endoderm
  - Lung
  - Stomach
  - Liver
  - Pancreas
  - Intestine
DNA Surgery: Scalpel + Suture

- Locate and cut.
- Full original context.
- **Safer, more efficient gene therapy.**
Ideas to Practice
Science and Clinical Care
Network and Brand Leadership
International Randomized Trials and Epidemiologic Studies

Jim Neaton, Ph.D.
Division of Biostatistics
School of Public Health
International Network for Strategic Initiatives in Global HIV Trials (INSIGHT)
Motivation for INSIGHT

• Necessity of trials with morbidity and mortality outcomes
• Faster translation of research globally
• More cost-efficient answers to major health questions
• Expanded collaborations
  – new ways of thinking about problems
  – world-wide lobbying on important issues
## INSIGHT: A Global HIV Network

<table>
<thead>
<tr>
<th>Study Acronym</th>
<th>Time Period</th>
<th>No. Countries</th>
<th>Enrollment</th>
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<tbody>
<tr>
<td>ESPRIT</td>
<td>2000-2008</td>
<td>25</td>
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<tr>
<td>SMART</td>
<td>2002-2006</td>
<td>33</td>
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<tr>
<td>SILCAAT</td>
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<tr>
<td>START</td>
<td>2009-2016</td>
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<td>4,688</td>
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</table>
## Expansion to Influenza in 2009 and Novel Respiratory Viruses in 2013

<table>
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<tr>
<th>Study</th>
<th>Time Period</th>
<th>No. Countries</th>
<th>Enrollment</th>
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</thead>
<tbody>
<tr>
<td>Outpatient</td>
<td>2009-</td>
<td>19</td>
<td>5,577</td>
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<tr>
<td>Inpatient</td>
<td>2009-</td>
<td>16</td>
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<tr>
<td>Genomics</td>
<td>2012-</td>
<td>11</td>
<td>1,487</td>
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<tr>
<td>IVIG PK</td>
<td>2013-</td>
<td>1</td>
<td>30</td>
</tr>
</tbody>
</table>

*Build it and they will come.*
Lynn A. Blewett Ph.D.
Professor of Health Policy

University of Minnesota Regents
Special Committee on Academic Medicine

Tuesday, May 8, 2014

University of Minnesota

School of Public Health

www.sph.umn.edu
Survey Expertise
- Sociologists
- Health Services Research

Policy Analysis
- Economists
- Public Health Analytics

State and Federal Data Expertise
- Statisticians
- Demographers

Program Evaluation
- Sociologists
- Program Evaluation
What we do

- Conduct health policy research
- Translate research to inform Policy
- Apply Federal and State data resources to inform research and policy
- Train researchers/policy analysts

Research Areas

- Health Insurance Coverage
- Access to care
- Safety Net/Disparities
- Monitoring/Evaluation of the ACA
- Health system reform - Medicaid
SHADAC Budget Snapshot
(annual apx $3.5 million)

- Federal: 27%
- States: 19%
- Foundation: 54%
Examples: RWJF State Network Project

**Estimating early impact of the ACA**

- Collecting data on new enrollment working with DHS, Health Plans, MCHA and MNsure *Oct-April 2013*
- Follow-Back Survey of 2013 MNHA survey respondents who said they were uninsured or enrolled in individual market

**Projecting Enrollment during Exchange Special Enrollment period**

- Weighting/estimation techniques using federal survey data to produce state-level estimates, American Indians; Churn (moving from Medicaid to exchange income); triggering events (losing job, having a baby, getting married..)
More Examples

**California Health Foundation**

- Developed evaluation framework and data collection strategy to monitor and evaluate the impact of the ACA (now being implemented)

**HHS Assistant Secretary for Planning and Evaluation (ASPE)**

- Developing a set of white papers on the use of state administrative data for research evaluation and methods for analysis of health reform.

**RWJF – MN Research Data Center**

- Attaching state identifiers to National Health Interview Survey (NHIS) to develop baseline state measures of access to needed care
Resources

• SHADAC Data Center
  http://www.shadac.org/datacenter

• Sign up for SHADAC newsletter
  http://www.shadac.org/content/stay-updated

• SHADAC blog
  Census CPS Changes Were Based on Careful Research in Order to Improve Coverage Estimates

• SHADAC Data Resources for Monitoring the ACA
  http://www.shadac.org/content/resources-monitoring-aca

• ACA Insurance Marketplace Enrollment Reports
  http://www.shadac.org/publications/insurance-marketplace-enrollment-reports
Sign up to receive our newsletter and updates at www.shadac.org

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