Office of Research Update

February 3, 2021

Presented to: WSU Faculty Senate

Presented by:
Christopher J. Keane, Vice President for Research, WSU
Vice Chancellor for Research, WSU Pullman
with
Geeta Dutta, Assistant Vice President for Research
Dan Nordquist, Associate Vice President for Research and Deputy VPR for Operations
WSU faculty, staff, students, and partners are rising to the challenge—conducting world class research, scholarship, and creative activity that benefits WA State, the US, and the world.

It takes a team!
Highlights- WSU research performance

• Record activity: ~2,500 proposals submitted, total value ~$1.3B (FY2021)
• Individual excellence recognized: WSAS membership, AAAS Fellowships,.....
• Record 2021 awards, including the largest grant ($125M) in WSU history
• Center for Arts and Humanities (funded by OR, CAS, others), now entering its fifth year, has generated a distinguished history of scholarship
• PNNL collaboration has made outstanding progress
  • Three Institutes (BIOIN, Advanced Grid, Nuclear) now fully formed- over $20M in new awards
  • WSU-PNNL Distinguished Graduate Research Program: 5 years, 24 students, 14 alumni
  • 42 WSU/PNNL joint appointments- the largest of any PNNL university partner
• Research computing (Kamiak) highly successful: 150 nodes, over 1000 users
• Record licensing revenue ($9.5M); over 65 new industrial partnerships
• 3 Keck Foundation finalists (all awarded) since 2017
WSU had a record year for sponsored awards in 2021

- Total FY21 awarded amounts increased by almost $17M compared to FY20
- Large Awards: Awarded amounts >$1M grew in number (+4) and in value (+$18M)
- Federal Awards: Increased in FY21 by $37M total (HHS funding +10M; USDA funding +24M)
- COVID-Related Research: Awarded projects that focused on COVID-related research totaled $1.1M in FY20, and $12.0M in FY21
Updated WSU NSF HERD R&D expenditures for FY2008-FY2020 (reflects corrections to philanthropic-related expenditures)

FY2019 corrections:

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Expend.</td>
<td>$345M</td>
<td>$369M</td>
</tr>
<tr>
<td>Total rank</td>
<td>76</td>
<td>70</td>
</tr>
<tr>
<td>Public rank</td>
<td>49</td>
<td>46</td>
</tr>
</tbody>
</table>

Data corrected for 2010-2020
WSU is having increasing success garnering large research awards

Preparing the world to fight infectious diseases
$125M (USAID)
Felix Lankester
Discovery & Exploration of Emerging Pathogens - Viral Zoonoses

Making food more nutritious, flavorful, and affordable
$10M (USDA)
Kevin Murphy
Optimizing Human Health & Nutrition: From Soil to Society

Developing AI solutions to tackle agricultural challenges
$20M (NSF-USDA)
Ananth Kalyanaraman
AI Institute: Agricultural AI for Transforming Workforce & Decision Support (AgAID)

Implementing a new approach to rivers and watersheds research training and community engagement
$3M (NSF)
Jan Boll
NRT: Rivers, Watersheds, Communities: Training an Innovative, Cross-Sector Workforce for Equitable, Multi-Scale Decision-Making Towards Human & Ecosystem Health

It takes a team!
Outstanding new faculty have been hired via the Grand Challenges Program (FY2016-FY2021)

**Notable Accomplishments**

**HERC**
Established a practice-based research network linking hospitals and clinics, which will allow for electronic record sharing for research purposes.

**Nutritional Genomics**
Led to the Soil to Society initiative and a $10M grant.

**Functional Genomics**
FGI Research Service Cores have increased competitiveness of over 20 research groups.
The Grand Challenges strategic research initiatives have been very successful

### Grants* & Publications Summary (FY16-21)

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Total Investment</th>
<th>Faculty</th>
<th>Awards</th>
<th>ROI</th>
<th>Publications</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M</td>
<td>n</td>
<td>n</td>
<td>n &gt;$1M</td>
<td>$M</td>
</tr>
<tr>
<td>HERC</td>
<td>2.7</td>
<td>33</td>
<td>258</td>
<td>26</td>
<td>108</td>
</tr>
<tr>
<td>Nutritional Genomics</td>
<td>2.1</td>
<td>17</td>
<td>214</td>
<td>13</td>
<td>57</td>
</tr>
<tr>
<td>Functional Genomics</td>
<td>3.95</td>
<td>26</td>
<td>105</td>
<td>12</td>
<td>43</td>
</tr>
<tr>
<td>Stormwater</td>
<td>2.1</td>
<td>14</td>
<td>185</td>
<td>9</td>
<td>47</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>10.9</strong></td>
<td><strong>762</strong></td>
<td><strong>60</strong></td>
<td><strong>256</strong></td>
<td><strong>24</strong></td>
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</table>

*Unique awards as either PI or collaborator
The Animal Welfare Program and Institutional Animal Care and Use Committee (IACUC) have improved their support of WSU faculty and staff.

<table>
<thead>
<tr>
<th>Protocol Type</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
</tr>
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<tbody>
<tr>
<td>New Research/Teaching</td>
<td>64</td>
<td>50</td>
<td>64</td>
</tr>
<tr>
<td>3 Year Protocol Resubmission</td>
<td>79</td>
<td>56</td>
<td>89</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>143</strong></td>
<td><strong>106</strong></td>
<td><strong>153</strong></td>
</tr>
<tr>
<td>Total Active Protocols</td>
<td>~500*</td>
<td>457</td>
<td>400</td>
</tr>
<tr>
<td>Avg. Review Time (days)</td>
<td>23</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>Exempt/Tissue Use</td>
<td>*</td>
<td>10</td>
<td>14</td>
</tr>
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**Highlights:**

- New online protocol system launched late 2017, fully operational 2020.
- Created and staffed the Animal Welfare Program Office with an Assistant Director, 2 program specialists and 1 Post Approval Reviewer (moved from OCV).
- AWP Office took on the compliance and administrative duties from OCV (e.g. annual reporting and noncompliance reviews and reporting).
- Standardized IACUC processes and policies and publish/maintain on improved website.
- Maintained an average review time for new protocols under 30 days.
- Office of the Campus Veterinarian cares for over 24,000 animals, with major vivariums now centralized.
The Human Research and Protection Program (HRPP) and Institutional Review Board (IRB) have improved their support of WSU faculty and staff.

**Improved Review Times vs. National Average (2020) reported in business days:**

<table>
<thead>
<tr>
<th></th>
<th>AAHRP</th>
<th>WSU</th>
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<tr>
<td>Average “pre-review” time to reviewer assignment</td>
<td>7.5</td>
<td>5 (was 10-15)</td>
</tr>
<tr>
<td><strong>Complete submission to approval (expedited)</strong></td>
<td>20</td>
<td>~20 (IQR = ~15-30)</td>
</tr>
<tr>
<td>Complete submission to initial review at convened board</td>
<td>14</td>
<td>&lt;10</td>
</tr>
<tr>
<td>Complete submission to approval @ FB</td>
<td>45</td>
<td>~50 (range 30-90+)</td>
</tr>
<tr>
<td>Complete submission to approval (exempt)</td>
<td>11</td>
<td>~10 (IQR = 7-15)</td>
</tr>
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</table>

**Highlights:**

- Launched improved IRB website including updated policies to comply with the revised common rule and; streamlined forms/application materials.
- Streamlined review processes: metrics developed for ongoing evaluation of program performance; improved review times in all categories; review times are now competitive with (or better than) the national average.
- Increased permanent HRPP/IRB Office staffing to include: Assistant Director, 2 compliance specialists, 2 IRB Review Coordinators and .5 FTE faculty reviewer.
- Substantially increased continuing education and training opportunities for IRB members, staff and researchers.
- Online protocol system developed and in testing stage.
The Research Safety Program is dedicated to ensuring safe conduct of research at WSU

- **Institutional Biosafety Committee (IBC) & Biosafety Program:** Oversees use of potentially biohazardous materials, as used by over 200 research groups in labs and field trials statewide
- **Select Agent Program:** Provides oversight for WSU & USDA research and WADDL diagnostic activities for the most regulated pathogens, with a successful program renewal audit in winter 2021
- **Radiation Safety:** Oversees all use of radioactive materials and x-ray producing machines statewide
- **Hazardous Materials Shipping:** Supports regulated hazmat shipments, averaging 850 packages each year
- **Export Controls:** Reviews technology control plans and restricted party screenings for the statewide university
- **Responsible Conduct of Research:** All personnel involved in research are trained
“Hot topics” and questions

- Award processing
- Contract processing
- Staff positions- AP vs. Civil Service
- Recruitment and retention
- Other

Thank you for your attention!