MDA/AAMD Updates

Vivek Kapur
Penn State
vkapur@psu.edu
MDA Updates - 2015

• MDA-CAP grant was NOT successful
• But we are a resilient bunch and are keeping motoring On:
• Completed and published vaccine studies
  – Animal model is key; validated
  – Promising candidates identified
• AAMD in second year
  – Diagnostic samples
  – Communications
  – Web-site – mycobacterialdiseases.org
• BMGF meeting in Morocco on bTB control in developing countries
• Launch of GRAbTB
• Joint MDA meeting with Mexico
• Explore interface with Genome Canada Vaccine Program
• What next?
“Strategy without tactics is the slowest route to victory. Tactics without Strategy is the noise before defeat.”

Sun Tzu
Strategy and Resources Drive Innovation

Knowledge Gaps
VBJDCP
JDIP-1
Industry Champions

Map Publications (n) vs M. bovis (%)

No. of publications in Pubmed

MAP vs M. bovis (%)
2 per. Mov. Avg. (MAP Publications (n))

Time Period

52 113 234 233 492 747 948
Strategy and Resources Drive Innovation – Industry as a catalyst!

Lost Innovation Potential - Knowledge deficit
Points to Ponder - reprise

• Are we depending on incremental and “tactical” but not “strategic” progress?
• MDA Community and JD Committee need to help refine strategy and prioritize tactics:
  – What is slowing progress in disease control? (Technology? Biology? Resources?)
  – What are the key inflection points?
  – Do we have a strategy to address potential public health concerns for MAP and bTB?
  – Roles of ARS, APHIS, Academia, Industry, Global Alliances?
Possible Strategic Planning Decision Tree

Unique - Builds on Strengths

Potential for Impact
Potential for Precedence

Distinctive

Transformative

Catalytic

Collaborative

- Early diagnostics
- Vaccines
- ?
- ?

Leverage Resources & Scale

Opportunities for diverse stakeholder interactions
## MDA-CAP – Knowledge Gaps

<table>
<thead>
<tr>
<th>Area</th>
<th>Motivation (TB and JD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pathogenesis</td>
<td>• Define the infectious phenotype</td>
</tr>
<tr>
<td></td>
<td>• Identify novel diagnostic and vaccine targets</td>
</tr>
<tr>
<td>Host Response</td>
<td>• Characterize the early host immune response</td>
</tr>
<tr>
<td></td>
<td>• Define correlates of protection</td>
</tr>
<tr>
<td>Diagnostics</td>
<td>• Identify animals early in infection</td>
</tr>
<tr>
<td></td>
<td>• Differentiate infected from vaccinated animals</td>
</tr>
<tr>
<td>Vaccines</td>
<td>• Evaluate candidate vaccines (JD only)</td>
</tr>
<tr>
<td>Host Genetics</td>
<td>• Identify markers for susceptibility</td>
</tr>
<tr>
<td></td>
<td>• Determine sire Predicted Transmitting Ability (JD only)</td>
</tr>
<tr>
<td>Epidemiology</td>
<td>• Understand mechanisms of transmission</td>
</tr>
<tr>
<td></td>
<td>• Economic analyses of targeted interventions and control strategies</td>
</tr>
<tr>
<td>Extension and</td>
<td>• Communication and stakeholder engagement</td>
</tr>
<tr>
<td>Education</td>
<td>• Socio-behavioral dimensions of control programs</td>
</tr>
<tr>
<td></td>
<td>• Educational modules including “One-health” programs for train the trainer and health professionals; Minority engagement and training</td>
</tr>
</tbody>
</table>
GRAbTB Alliance

• Vision - A coordinated global research alliance enabling improved understanding and control of bovine TB

• Mission - To establish and sustain global research partnerships that will generate scientific knowledge and tools to contribute to the successful control and eradication of bovine TB

• Part of a group of Global Strategic Alliances for the Co-ordination of Research on the Major Infectious Diseases of Animals and Zoonoses (STAR-IDAZ)
GRAbTB – Strategic Goals

• Identify research opportunities and facilitate collaborations within the Alliance
• Conduct strategic and multi-disciplinary research to better understand bovine TB
• Develop novel and improved tools to control bovine TB
• Serve as a communication and technology sharing gateway for the global bovine TB research community and stakeholders
• Promote collaboration with the human TB research community