### BASIC INFORMATION

#### A. Basic Project Data

<table>
<thead>
<tr>
<th>Country</th>
<th>Project ID</th>
<th>Project Name</th>
<th>Parent Project ID (if any)</th>
</tr>
</thead>
<tbody>
<tr>
<td>World</td>
<td>P167064</td>
<td>HIV Vaccine Research and Development</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Region</th>
<th>Estimated Appraisal Date</th>
<th>Estimated Board Date</th>
<th>Practice Area (Lead)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Financing Instrument</th>
<th>Borrower(s)</th>
<th>Implementing Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investment Project Financing</td>
<td>International AIDS Vaccine Initiative</td>
<td>International AIDS Vaccine Initiative</td>
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</table>

**Proposed Development Objective(s)**

To develop and characterize viable HIV vaccine candidate(s) and other potential viral vectors as basic research for new technologies against infectious diseases of poverty.

**Components**

- **Pillar I.** Detailed immunologic and transcriptomics analysis on samples collected from studies funded by IAVI and other collaborating partners
- **Pillar II.** Applied research aimed at developing a cell line that will support GMP-manufacturing of G-pseudotyped VSVGD-Env.BG505
- **Pillar III.** Construction and characterization of two VSV-like vectors
- **Pillar IV.** Strengthening of the coordination among key global stakeholders to promote further engagements from the global scientific community, private sector and other stakeholders

### PROJECT FINANCING DATA (US$, Millions)

#### SUMMARY

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td><strong>Total Project Cost</strong></td>
<td>5.75</td>
</tr>
<tr>
<td><strong>Total Financing</strong></td>
<td>5.75</td>
</tr>
<tr>
<td>of which IBRD/IDA</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Financing Gap</strong></td>
<td>0.00</td>
</tr>
</tbody>
</table>

#### DETAILS

**Non-World Bank Group Financing**
The World Bank
HIV Vaccine Research and Development (P167064)

<table>
<thead>
<tr>
<th>Trust Funds</th>
<th>5.75</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free-standing TFs for HDNVP</td>
<td>5.75</td>
</tr>
</tbody>
</table>

Environmental Assessment Category
B-Partial Assessment

Decision
The review did authorize the team to appraise and negotiate

Other Decision (as needed)

B. Introduction and Context

Country Context
The project is not country-specific, hence not applicable.

Sectoral and Institutional Context

1. The need for a vaccine against Human Immunodeficiency Virus (HIV) remains urgent, with the epidemic contributing to reversals in health, food security, education and other measures of prosperity and stability. Approximately 5,753 people become newly infected with HIV each day. The pandemic is still outpacing current treatment and prevention efforts in many countries. There is no cure for HIV infection. However, effective (but costly) antiretroviral medicines can control the virus and help prevent transmission so that people with HIV, and those at substantial risk, can enjoy healthy and productive lives. Another hope is that a vaccine can be developed against the virus. Its introduction will improve millions of lives around the world. Even though no vaccination is 100% effective, overall, immunization has proved to be one of the most cost-effective means to prevent vaccine-preventable diseases.

2. Global investment in the research and development (R&D) of a preventive vaccine for HIV should continue. More than 30 candidate vaccines have been developed and only a few have been tested for efficacy in people. None of them have proven efficacious enough in long-term protection to be introduced into clinical practice. A series of failures and the absence of prospects of a fully effective vaccine in the near future seems to discourage the pharmaceutical industry to further invest into vaccine R&D against HIV and pathogens of poverty.

3. The technical basis for further investments in HIV vaccine research is strong. While immune correlates for protection against HIV infection are currently unknown, it is generally hypothesized that antibodies, cell-mediated immune responses and mucosal immunity may all be needed in an effective preventive HIV vaccine. Among the goals for an efficacious vaccine is eliciting protective mechanisms at the primary interface for HIV infection, the mucosa. Although there is demonstration that parenterally administered vaccines could provide such protection, it
well may require mucosal administration of vaccines to achieve optimal protection at those surfaces. Further, there is great interest in the potential for replicating vectors to elicit optimal responses, in terms of profile and magnitude.

4. **Rationale for creating a new Trust Fund.**
   a. The Trustee account TF071457 “Support to International AIDS Vaccine Initiative Trust Fund” was established June 24, 2010. Several contributions totaling $10 million from the Japan Ministry of Finance were made according to a contribution schedule (prior to FY13 - $6M; FY14 - $2M; FY15 - $2M). The objective of the trust fund was to develop a new candidate HIV vaccine. The trust fund supported the IAVI in the development and trial of a novel vaccine candidate - the *Sendai Vector*, with a work program of 5 years. A Trustee account TF072627, parallel to TF071457, was established June 13, 2016 to take account of an updated cost recovery policy of the World Bank. The contribution was made by the same donor in the amount of $4 million (FY16 - $2M; FY18 - $2M). Since 2010, the original account TF071457 has been extended twice and for more than two years, which warranted the approval from senior Bank management.
   b. A new trust fund will support a new program of research, not related to the Sendai Virus technology, and will have different objectives.

**C. Proposed Development Objective(s)**

**Development Objective(s) (From PAD)**
To develop and characterize viable HIV vaccine candidate(s) and other potential viral vectors as basic research for new technologies against infectious diseases of poverty.

**Key Results**

1. VSV-G vector fully characterized including in immunological, genetic and cellular propagation aspects
2. Two further novel vectors (VSV(NJ) and a novel VSV-like vector) constructed and characterized
3. GMP compliant cell line for use in manufacturing of VSV-based HIV vaccine vectors produced
4. Joint learning events and meeting outputs developed with global partners in R&D for potential epidemic diseases and diseases of poverty

**D. Project Description**
The Recipient executed activities of this Project consists of **R&D component** and **non-R&D component** in order to achieve the proposed development objectives.

**R&D component**

Under the R&D component, activities that support the development of HIV vaccine candidate including vector optimization and development of a related viral presentation platform are planned. The Project will entail further research on the transcriptomic and immunological response to the VSV-vectored HIV vaccine candidates and applied research to address optimization of methods related to effective vaccine production. The Project will also include activities to establish a VSV vector platform for development of vaccines against variety of infectious diseases.

**Pillar I. Detailed immunologic and transcriptomics analysis on samples collected from studies funded by IAVI and other collaborating partners**

Detailed immunologic and transcriptomic analysis on samples will be implemented.

**Pillar II. Applied research aimed at developing a cell line that will support GMP-manufacturing of G-pseudotyped VSVDG-Env.BG505**

Under the past IAVI/WB/Japan Partnership Program, some initial work on modifying the Vero cell line to express the VSV G glycoprotein along with the human CD4 and CCR5 coreceptors needed to propagate VSVDG-Env.BG505 was done. Although the results were not very satisfactory, they provided evidence that a G-pseudotyping cell line was feasible with further development and innovation. Hence, this pillar addresses optimization of methods related to effective vaccine production.

**Pillar III. Construction and characterization of two VSV-like vectors**

This work aims at advancing development of additional VSV-like vaccine vectors to enable broader application of the chimeric virus vaccine platform to other viral diseases.

**Non-R&D component**

Under the non-R&D component, the following activities are planned in order to strengthen the coordination among key stakeholders, namely IAVI, Coalition for Epidemic Preparedness Innovations (CEPI) and Global Health Innovative Technology Fund (GHIT), to promote further engagements from the global scientific community, private sector and other stakeholders.

**Pillar I. Regular scientific stakeholder meeting co-organized by IAVI/CEPI/GHIT**
Pillar II. Development of communication material

Pillar III. Field visits to IAVI Clinical Research Centers

E. Implementation

Institutional and Implementation Arrangements

5. The sole Recipient of the grant under this project (IAVI) will be the implementing agency of the project. IAVI will be overseeing all project components and will be responsible for all reporting, safeguard, procurement and financial functions.

6. IAVI in its laboratories will construct and characterize novel vectors including VSV (NJ) and VSV-ΔG (HIV.Env position 1). The result framework of the project has been crafted to give maximum flexibility in the technical outcomes, recognizing that the course of Research and Development is inherently unpredictable. Project supervision will include monitoring of the ongoing technical feasibility of each of the proposed activities. In the event that any of the outcomes is anticipated to vary, the Recipient of the grant (IAVI) and the Bank task team will discuss possible mitigation measures, technical justification of any activity changes, while keeping these within the scope of the Results Framework.

F. Project location and Salient physical characteristics relevant to the safeguard analysis (if known)

Administrative offices located in Manhattan, New York City, USA and laboratory located in Brooklyn, New York City, USA.

G. Environmental and Social Safeguards Specialists on the Team

Jun Zeng, Social Specialist
Brandon Enrique Carter, Environmental Specialist
<table>
<thead>
<tr>
<th>Safeguard Policies</th>
<th>Triggered?</th>
<th>Explanation (Optional)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Assessment OP/BP 4.01</td>
<td>Yes</td>
<td>The Project will involve no physical works. Key environmental and social risks and impacts are expected related to HIV/AIDS vaccine development to be supported by the Project, including: biosafety; occupational health and safety, including exposure to hazardous materials and biohazards; management of hazardous materials; and storage and disposal of hazardous waste and biohazardous/medical waste. The Project is Category B, as these risks and impacts are few in number and readily mitigated.</td>
</tr>
<tr>
<td>Performance Standards for Private Sector Activities OP/BP 4.03</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Natural Habitats OP/BP 4.04</td>
<td>No</td>
<td>The Project does not involve any activities which will trigger this policy. The project will not affect any protected areas, known natural habitats, or established or proposed critical natural habitats.</td>
</tr>
<tr>
<td>Forests OP/BP 4.36</td>
<td>No</td>
<td>The Project does not involve any activities which will trigger this policy. The project will not involve commercial logging operations in primary tropical moist forests, purchase of logging equipment for use in primary tropical moist forests, or production or trade in wood or other forestry products from unmanaged forests.</td>
</tr>
<tr>
<td>Pest Management OP 4.09</td>
<td>No</td>
<td>The Project does not involve any activities which will trigger this policy. The project will not procure any</td>
</tr>
<tr>
<td>Physical Cultural Resources OP/BP 4.11</td>
<td>No</td>
<td>The project will not affect sites with archeological, paleontological, historical, religious, or unique natural values. The Project does not involve any activities which will trigger this policy.</td>
</tr>
<tr>
<td>Indigenous Peoples OP/BP 4.10</td>
<td>No</td>
<td>The Project does not involve any activities which will trigger this policy. The project will not affect indigenous people.</td>
</tr>
<tr>
<td>Involuntary Resettlement OP/BP 4.12</td>
<td>No</td>
<td>The Project does not involve any activities which will trigger this policy. The project will not involve any physical or economic displacement as a result of land acquisition.</td>
</tr>
<tr>
<td>Safety of Dams OP/BP 4.37</td>
<td>No</td>
<td>The Project does not involve any activities which will trigger this policy. The project will not involve construction or rehabilitation of dams, nor will it rely on the performance of any dam.</td>
</tr>
<tr>
<td>Projects on International Waterways OP/BP 7.50</td>
<td>No</td>
<td>The Project does not involve any activities which will trigger this policy. No international waterways are affected by the project.</td>
</tr>
<tr>
<td>Projects in Disputed Areas OP/BP 7.60</td>
<td>No</td>
<td>N/A.</td>
</tr>
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</table>

**KEY SAFEGUARD POLICY ISSUES AND THEIR MANAGEMENT**

**A. Summary of Key Safeguard Issues**

1. Describe any safeguard issues and impacts associated with the proposed project. Identify and describe any potential large scale, significant and/or irreversible impacts:

   **Biosafety risks are high, relating to exposure of AIDS culture by researchers, AIDS vaccine prototype by production facility personnel, or HIV infected blood by such personnel at the clinics as nurses, physicians, laboratory analysts, technicians, and other health workers. These exposures may result through an intact or broken skin, or a puncture wound, or through the eyes or other mucous membranes such as nose and mouth. Sharps or broken glass contribute to injuries leading to human exposure. Another area of biosafety risk is associated with the handling of animal subjects, including non-human primates (NHPs), during testing and disposal of animal carcasses. These risks and impacts are managed through IAVI’s EMP.**

   The Project will not support vaccine tests on human subjects or procurement of NHPs. However, closely related research in vector optimization development supported from other sources may include testing on animal subjects, including NHPs. In conducting research on animal subjects, including NHPs, IAVI complies with all relevant laws of the United States (the Animal Welfare Act) and the State of New York, as well as maintaining animal welfare accreditations from the US Department of Agriculture and AAALAC International, the latter being a voluntary third-party animal welfare accreditation standard for use of animals in scientific research.
2. Describe any potential indirect and/or long term impacts due to anticipated future activities in the project area:
N/A

3. Describe any project alternatives (if relevant) considered to help avoid or minimize adverse impacts.
N/A

4. Describe measures taken by the borrower to address safeguard policy issues. Provide an assessment of borrower capacity to plan and implement the measures described.
IAVI is one of the world’s leading institutions in the field of HIV vaccine research and has demonstrated capacity to manage environmental and social risks and impacts, including having adequate rules and procedures, staff, and systems consistent with the World Bank safeguard requirements. IAVI operates in compliance with all relevant laws and regulations of the United States and State and City of New York and its safeguard performance under the previous project (P161232) has been highly satisfactory. There have been no adverse incidents/exposure nor citations by regulatory authorities under the previous project.

Adverse environmental and social risks and impacts will continue to be managed through implementation of the Environmental Management Plan (EMP). The EMP is implemented by a safety committee comprised of twelve members with representatives from each of the laboratory research teams that meets monthly and is responsible for training, recording and monitoring of incidents and revisions to SOPs.

5. Identify the key stakeholders and describe the mechanisms for consultation and disclosure on safeguard policies, with an emphasis on potentially affected people.
Given the nature of this project, no public consultation is required beyond re-disclosure of the EMP with a mechanism for people to ask questions or make comments for the team’s consideration and/or response.

B. Disclosure Requirements

<table>
<thead>
<tr>
<th>Environmental Assessment/Audit/Management Plan/Other</th>
<th>Date of receipt by the Bank</th>
<th>Date of submission for disclosure</th>
<th>For category A projects, date of distributing the Executive Summary of the EA to the Executive Directors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>21-Nov-2018</td>
<td>29-Nov-2018</td>
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</table>

"In country" Disclosure
United States
29-Nov-2018

Comments
Website
C. Compliance Monitoring Indicators at the Corporate Level (to be filled in when the ISDS is finalized by the project decision meeting)

OP/BP/GP 4.01 - Environment Assessment

Does the project require a stand-alone EA (including EMP) report?
Yes
If yes, then did the Regional Environment Unit or Practice Manager (PM) review and approve the EA report?
Yes
Are the cost and the accountabilities for the EMP incorporated in the credit/loan?
Yes

The World Bank Policy on Disclosure of Information

Have relevant safeguard policies documents been sent to the World Bank for disclosure?
Yes
Have relevant documents been disclosed in-country in a public place in a form and language that are understandable and accessible to project-affected groups and local NGOs?
Yes

All Safeguard Policies

Have satisfactory calendar, budget and clear institutional responsibilities been prepared for the implementation of measures related to safeguard policies?
Yes
Have costs related to safeguard policy measures been included in the project cost?
Yes
Does the Monitoring and Evaluation system of the project include the monitoring of safeguard impacts and measures related to safeguard policies?
Yes
Have satisfactory implementation arrangements been agreed with the borrower and the same been adequately reflected in the project legal documents?
Yes

CONTACT POINT

World Bank

Robert Oelrichs
Senior Health Specialist
Borrower/Client/Recipient
International AIDS Vaccine Initiative
Mark Feinberg
President and CEO
mfeinberg@iavi.org

Implementing Agencies
International AIDS Vaccine Initiative
Mark Feinberg
President and CEO
mfeinberg@iavi.org

FOR MORE INFORMATION CONTACT
The World Bank
1818 H Street, NW
Washington, D.C. 20433
Telephone: (202) 473-1000
Web: http://www.worldbank.org/projects

APPROVAL

Task Team Leader(s): Robert Oelrichs

Approved By

Safeguards Advisor: Agi Kiss 29-Nov-2018
Practice Manager/Manager: E. Gail Richardson 30-Nov-2018
Country Director: Fadia M. Saadah 03-Dec-2018