



2016

BVGH Partnership Hub Report

**Catalyzing Partnerships
for Global Health**



WIPO Re:Search Advancing Collaboration –
MSD + WEHI

MSD provided researchers at the Walter and Eliza
Hall Institute of Medical Research (WEHI) with
aspartyl protease inhibitors to screen against
Plasmodium falciparum.

Dear WIPO Re:Search Members and Friends,

Since WIPO Re:Search was launched in October 2011, we have surpassed expectations and reached numerous milestones: the first WIPO Re:Search collaboration was established in 2012; five researchers from Member organizations based in low- and middle-income countries participated in training sabbaticals in 2013; three new biopharmaceutical company Members joined between 2014 and 2015; WIPO Re:Search membership surpassed 100 organizations in 2015; and the 100th WIPO Re:Search collaboration was established in 2016.

This past year WIPO Re:Search also celebrated its five-year anniversary. As we look back on our accomplishments, we are looking ahead and planning for the next five years. As the global health landscape evolves, so too must WIPO Re:Search. BVGH and WIPO have been developing a five-year WIPO Re:Search strategic plan that will take us forward and ensure that we align with the new Sustainable Development Goals and focus on the most pressing global health needs. The Strategic Plan will describe how we will build upon the Consortium's successes and maneuver within the changing global health field to continue to accelerate product development for malaria, tuberculosis, and neglected tropical diseases (NTDs) efficiently and effectively.

Throughout 2016, BVGH continued to establish new research collaborations between Members; provide alliance management and project support to all ongoing collaborations; recruit new Members; and communicate the goals, activities, and achievements of the WIPO Re:Search consortium. BVGH established 12 new agreements, supported ongoing collaborations, and recruited eight new Members in 2016. Since WIPO Re:Search was launched, 108 agreements have been established between Members. Of these, 15 have met key product development milestones. Examples of these advancing collaborations are highlighted throughout this report.

We are encouraged by the progress made since 2011 and in 2016. With the Consortium's mission to accelerate drug, vaccine, and diagnostic development for NTDs, malaria, and tuberculosis top of mind, BVGH will continue its efforts to establish meaningful research projects that help our Members advance their important research. All of us at BVGH thank you for your support.



Jennifer Dent
President, BVGH

Annual Report Opening Letter



2016 Partnering Objectives and Achievements

In 2016, BVGH established a total of 12 new agreements between Members, meeting its 2016 partnering goal. These additions bring the total number of WIPO Re:Search agreements into the triple digits – 108 collaborations – which is an important milestone to achieve in just five years. Following the trends of previous years, malaria was the primary focus of the majority of collaborations established in 2016. The remaining new agreements concentrated on schistosomiasis, soil transmitted helminthiasis, and tuberculosis. Fourteen diseases have been the target of WIPO Re:Search collaborations since the Consortium was launched.

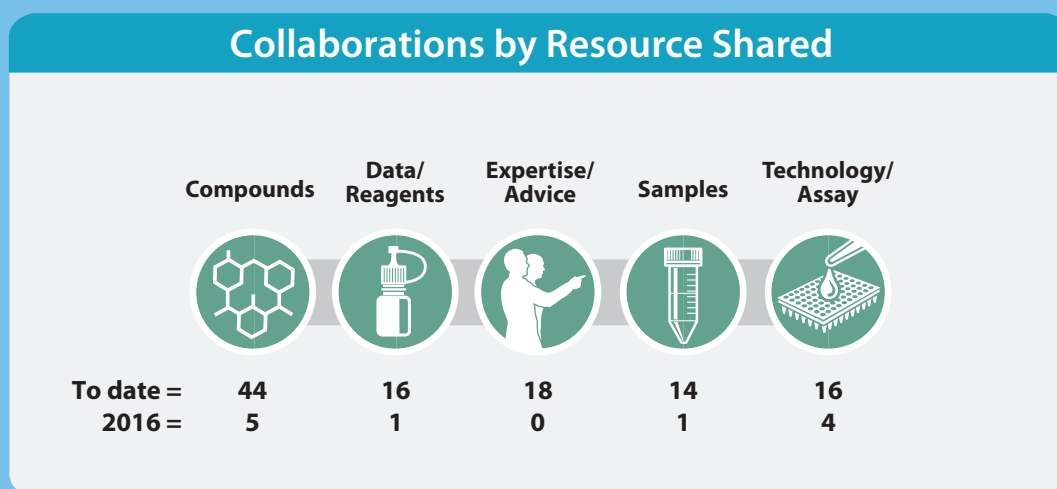
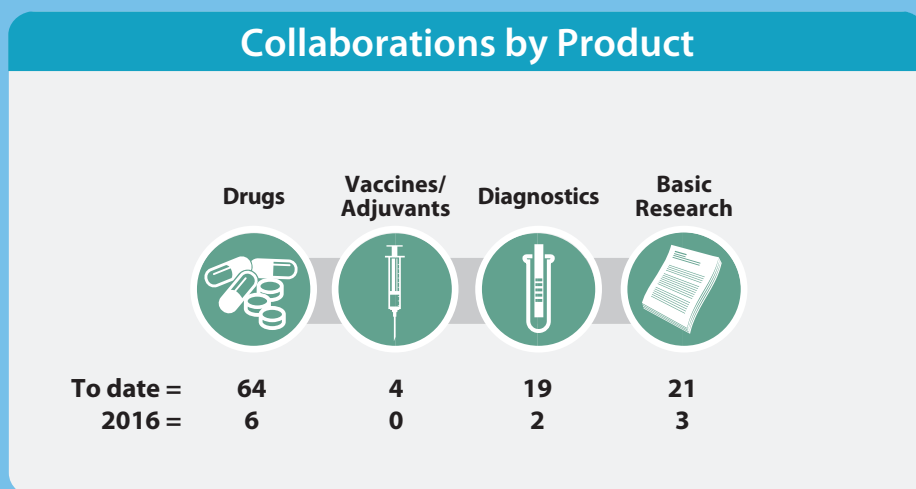
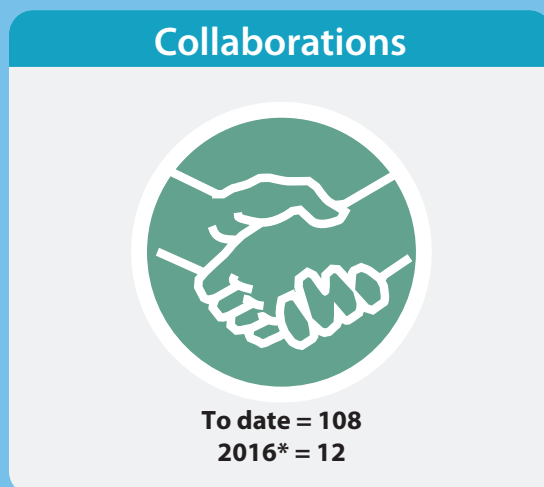
The majority of collaborations (82%) established in 2016 involved Members that were based in different countries and 36% included a low- to middle-income country partner. The new collaborations were evenly split between those involving a for-profit and nonprofit Member and those involving only nonprofit Members.

Consistent with previous years, drug discovery remained the primary focus (55%) of the collaborations established in 2016; the other collaborations targeted diagnostics (18%) and basic research (27%). Of the 108 agreements established between 2012 and 2016, 33 are still active, 15 have met an important product development milestone, and 60 have reached a conclusion.

In addition to establishing new agreements, BVGH continued to support current partnerships. BVGH monitored and tracked the statuses of all ongoing WIPO Re:Search collaborations and provided project support and alliance management as needed. Building on the success of a schistosomiasis drug discovery partnership originally established in 2012, BVGH involved a new partner with the complementary expertise needed to advance that program. A pipeline chart of all collaborations and their statuses can be viewed on pages 6-7 of this report.

BVGH met its 2016 partnering goal by establishing 12 agreements between Members, including an agreement to advance an existing collaboration.

Research Agreements



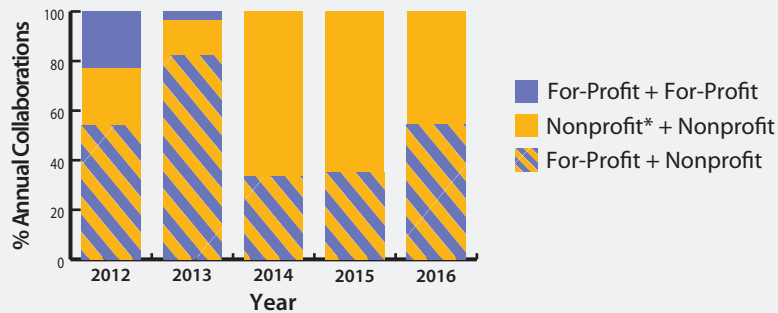
The Consortium's diverse membership is key to its success. Each Member has unique assets and projects that are critical to combating neglected infectious diseases. This year, BVGH initiated a systematic and comprehensive approach to identifying, connecting with, and engaging Member organization scientists that had yet to participate in a WIPO Re:Search collaboration. Through these new connections, BVGH explored new product development projects and identified assets relevant to NTD, malaria, and tuberculosis research. In 2016, BVGH established WIPO Re:Search collaborations with three Members that had yet to participate in a collaboration before. A total of 56 of the 90 User and/or Provider Members have participated in a WIPO Re:Search collaboration since the Consortium was launched.



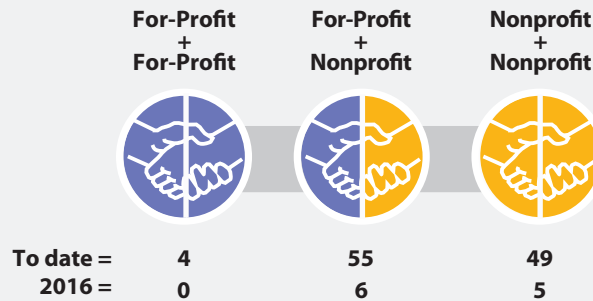
2016
Partnering Objectives
and Achievements

Partnering across the globe

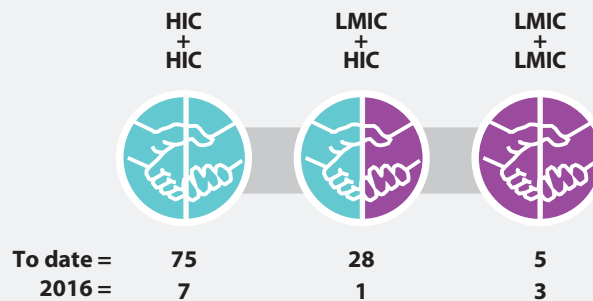
Collaboration Trends by Sector



Collaborations by Sector



Collaborations by Geography



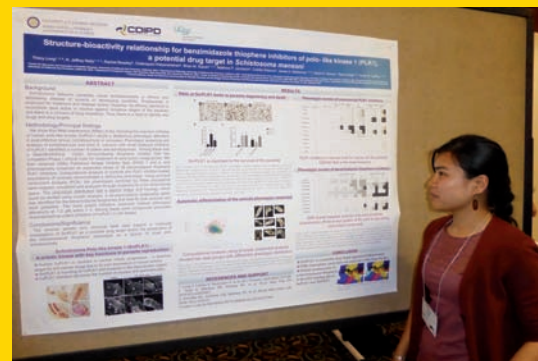
HIC: high-income country Member; LMIC: low- to middle-income country Member

Member highlights

Since the launch of the Consortium in 2011, researchers worldwide have participated in WIPO Re:Search collaborations. In 2016, a number of these participating researchers presented their findings at conferences and meetings and published their data generated through WIPO Re:Search collaborations in peer-reviewed journals.

Member Publications and Presentations:

- **GSK + UCSD:** "Structure-Bioactivity Relationship for Benzimidazole Thiophene Inhibitors of Polo-Like Kinase 1 (PK1), a Potential Drug Target in *Schistosoma mansoni*", *PLoS Negl. Trop. Dis.*, 2016.
- **GSK + UCSD:** "Structure-Bioactivity Relationship for Benzimidazole Thiophene Inhibitors of Polo-Like Kinase 1 (PLK1), a Potential Drug Target in *Schistosoma mansoni*", *Anthelmintics: From Discovery to Resistance II*, San Diego, USA.
- **GSK + UW:** "Biochemical Screening of Five Protein Kinases from *Plasmodium falciparum* against 14,000 Cell-Active Compounds", *PLoS One*, 2016.
- **PATH + CPC:** "A Field-Tailored Reverse Transcription Loop-Mediated Isothermal Assay for High Sensitivity Detection of *Plasmodium falciparum* Infections", *PLoS One*, 2016.
- **PATH + CPC:** "A Field-Tailored Reverse Transcription Loop-Mediated Isothermal Assay for High Sensitive Detection of *Plasmodium falciparum* Infections", *Molecular Approaches to Malaria (MAM) 2016*, Lorne, Australia.
- **PATH + U of Calgary:** "NINA-LAMP Compared to Microscopy, RDT, and Nested PCR for the Detection of Imported Malaria", *Diagn. Microbiol. Infect. Dis.*, 2016.
- **Pfizer, Sanofi + CWHM:** "Pharmacologic Comparison of Clinical Neutral Endopeptidase Inhibitors in a Rat Model of Acute Secretory Diarrhea", *J. Pharm. Exp. Ther.*, 2016.



Dr. Thavy Long, University of California, San Diego (UCSD), presented the results of her collaboration with GlaxoSmithKline (GSK) at the *Anthelmintics: From Discovery to Resistance II* meeting.



Dr. Lawrence Ayong, Centre Pasteur du Cameroun (CPC), presented the results of his collaboration with PATH at the *Molecular Approaches to Malaria (MAM) 2016* conference.



Dr. David Reddy, Medicines for Malaria Venture (MMV), (left) and Dr. Fidelis Cho-Ngwa, University of Buea, (right) at the Novartis Access side event during the 69th World Health Assembly

WIPO Re:Search Advancing Collaboration – Eisai + LSTM: Eisai provided a Liverpool School of Tropical Medicine (LSTM) researcher with PAR1 inhibitors to test in his *in vitro* model of cerebral malaria.



2016 Recruitment Objectives and Achievements

In order to establish diverse, innovative, and impactful collaborations, the WIPO Re:Search membership must be composed of varied and distinct Member organizations. Research institutes from different sectors and geographies contribute unique expertise, ideas, assets, and capacities toward the development of products for neglected infectious diseases.

BVGH recruited eight new User and Provider Members in 2016. With the addition of Members from Ethiopia, Nepal, the Philippines, the Republic of the Congo, the United Kingdom, and the United States of America, the WIPO Re:Search membership now spans 31 countries. By the end of 2016, 109 organizations – including 90 User and/or Provider Members – were WIPO Re:Search Members. Of these Members, 38 (35%) are based in a low- to middle-income country.

Interdisciplinary connections are a cornerstone of WIPO Re:Search. The majority of Members are academic institutions (39%), followed by nonprofit organizations (35%), government agencies (17%), and for-profit companies (9%). The eight new Member organizations that joined in 2016 built upon this composition; three academic institutions, three nonprofit organizations, and two government agencies joined in 2016.

BVGH recruited eight User and Provider Members in 2016, exceeding its 2016 goal of four new Members.

New Members

- ■ Addis Ababa University*
- ■ Armauer Hansen Research Institute (AHRI)*
- ■ Case Western Reserve University
- ■ Center for Molecular Dynamics Nepal (CMDN)*
- ■ Fondation Congolaise pour la Recherche Medicale (FCRM)*
- ■ Malaria Consortium
- ■ Research Institute for Tropical Medicine (RITM)*
- ■ University of Georgia (UGA)

* Low- to middle-income country Member

■ Provider ■ User

WIPO Re:Search Advancing Collaboration – MSD + UCSD & CIDR: MSD provided a University of California, San Diego (UCSD) researcher with HMG-CoA reductase inhibitors to screen against *Schistosoma mansoni*. Researchers at the Center for Infectious Disease Research (CIDR) and the Seattle Structural Genomics Center for Infectious Disease (SSGCID) are attempting to solve the structure of the *S. mansoni* HMG-CoA reductase (SmHMGR) to support rational drug design.

In addition to accelerating product development for malaria, tuberculosis, and NTDs, WIPO Re:Search was established to demonstrate that intellectual property (IP) is not a barrier to research and development. In support of this objective, BVGH continued to describe the IP-sharing partnerships established between WIPO Re:Search Members and the outcomes of those research projects through various forms of media including publications, presentations, and social media.

Through the *Partnership Hub Snapshot* newsletter, BVGH featured new collaborations, introduced new Members, and highlighted Member contributions to the WIPO Re:Search Database. Distribution of the *Partnership Hub Snapshot* newsletter grew to include more than 1,500 individuals from hundreds of organizations across 40 countries.

The BVGH team represented the Consortium at key global health and biopharmaceutical industry events throughout the year. In 2016, BVGH presented WIPO Re:Search at 13 meetings and represented the Consortium at an additional five.

2016

Communication Objectives and Achievements

Conference Attendance & Presentations

Neglected Disease Conferences:

- Anthelmintics: From Discovery to Resistance II*
- ISNTD Diagnostics, Drug Discovery & Development (d3)*
- 2016 Seattle Parasitology Conference
- WIPO Re:Search Side Event, 69th World Health Assembly*
- International Congress for Tropical Medicine and Malaria (ICTMM) 2016*
- 2016 Coalition for Operational Research on Neglected Tropical Diseases (COR-NTD) Annual Meeting
- 65th American Society of Tropical Medicine and Hygiene (ASTMH) Annual Meeting
- H3D Symposium: Malaria, Tuberculosis and Neglected Tropical Diseases: Progress in Drug Discovery and Development

Global Public Health and Industry Conferences:

- Wharton Business School Global Health Seminar*
- Xconomy's EXOME Presents: Seattle's Life Science Disruptors 2016*
- 12th Annual Biotechnology Entrepreneurship Boot Camp*
- 2016 BIO International Convention*
- Global Health Seminar, Center for Infectious Disease Research*
- Research Discussion Group, Institute for Systems Biology*
- Cavendish Global: California Global Health Impact Forum
- 2016 Global Humanitarian Technology Conference (GHTC)*
- 8th European & Developing Countries Clinical Trials Partnership (EDCTP) Forum*
- 1st Annual Tech Transfer Summit (TTS) Latin America*

* Talk/panel session



2016 Communication Objectives and Achievements

BVGH's 2013 manuscript about WIPO Re:Search was lauded as one of the *Pharmaceutical Patent Analyst* journal's top-cited articles over the past four years. In 2016 the journal invited BVGH to write a follow-on article. The publication, "Fostering Innovative Product Development for Neglected Tropical Diseases Through Partnerships", provided an update on WIPO Re:Search IP-sharing collaborations and Member achievements, and described the Consortium's alignment to the new Sustainable Development Goals (SDGs).

The United Nations' series of high-level panels (UN HLP) has focused renewed interest in the interplay between IP and access to medicines. BVGH featured WIPO Re:Search as an example of the benefit of IP to access during its testimony to the UN HLP held in London in 2016. In addition, BVGH echoed the important role of IP in WIPO Re:Search in an interview published by *Intellectual Property Watch*. This article, which was part of an International Federation of Pharmaceutical Manufacturers & Associations (IFPMA)-sponsored series, was viewed over 650 times, tweeted and retweeted a combined 13 times, and shared on LinkedIn 62 times.

Social media has become an increasingly popular method to discover and disseminate news. BVGH expanded its social media presence in 2016 – including using Twitter and LinkedIn – to promote WIPO Re:Search and its Members. Both Twitter and LinkedIn were used to share the *Partnership Hub Snapshot* and other WIPO Re:Search publications.

BVGH tweeted about WIPO Re:Search over 20 times during 2016, with some tweets receiving upwards of 7,000 impressions.

Communications

Publication



“Fostering Innovative Product Development for Neglected Tropical Diseases Through Partnerships”

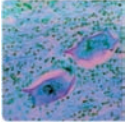
Pharmaceutical Patent Analyst

Featured collaborations:

- GSK + UCSD: inhibitors for Chagas disease and leishmaniasis
- Merck KGaA + U of Buea: inhibitors for onchocerciasis
- Stanford + CPC: dengue diagnostic development
- McMaster + USF: soil-transmitted helminth diagnostic
- Alnylam + Aberystwyth: siRNAs for schistosomiasis drug target discovery
- Pfizer + 60P: investigator’s brochure for dengue drug development
- GSK + NII: inhibitor set for tuberculosis research

Social Media

BVGH @BIOVentures - 1 Sep 2016
 Jennifer Dent in [@ipwatch](#) interview shares how WIPO Re:Search catalyzes the dev. of meds where none currently exist



Innovation And Access: Fission Or Fusion? Interview...
 In the light of the UN High-Level Panel on Access to Medicines, this series of sponsored articles challenges experts to give their views on the policies that best sup...
ip-watch.org

WIPO Re:Search Communications


BVGH @BIOVentures - 7 Dec 2016
 Congrats to [#WIPOReSearch](#) Member, [@dundeeuni](#), on receiving £13.6m from [@wellcometrust](#) for a new [#NTD](#) research center



University of Dundee receives £13.6m for tropical disease research - ...
 The University of Dundee is awarded £13.6m to tackle some of the world’s most devastating diseases.
bbc.com

WIPO Re:Search Member Activities

BVGH @BIOVentures - 9 Dec 2016
 New paper by [@institutepasteur](#) [#Cameroun](#) and [@PATHtweets](#) about their NINA-LAMP assay - a [#WIPOReSearch](#) collaboration



A Field-Tailored Reverse Transcription Loop-Mediat...
 Highly sensitive and field deployable molecular diagnostic tools are critically needed for detecting submicroscopic, yet transmissible levels of malaria parasites prevalent...
ncbi.nlm.nih.gov

WIPO Re:Search Collaboration Milestones



2016 and 2017 Conclusions and Objectives

BVGH met all program objectives in 2016:

- Established 12 new agreements
- Provided ongoing alliance management to support partnerships
- Recruited eight new User and Provider Members
- Communicated WIPO Re:Search achievements and activities to increase awareness of the Consortium

BVGH objectives and deliverables for 2017 include:

- Establish eight new “targeted” agreements
- Provide alliance management support to ongoing collaborations
- Recruit three to six new targeted User Members*
- Continue activities to increase awareness of WIPO Re:Search:
 - *Monthly Partnership Hub Snapshot* newsletter
 - *2017 Mid-Year and Annual Report*
 - Increase social media presence (Twitter, LinkedIn, etc.)
- Present WIPO Re:Search at two key conferences
- Raise awareness of WIPO Re:Search at three key events
- Develop the WIPO Re:Search five-year Strategic Plan
- Manage WIPO Re:Search developing country researcher training sabbaticals with IP Australia’s Funds in Trust (FIT) to WIPO

*Targeted User Members include those from select countries and regions - Australia, Indo-Pacific, and East Africa - and institutions with capacities to fill gaps in disease or product development areas



Developed in cooperation with our Sponsors:



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Email: info@bvgh.org • Website: <http://www.bvgh.org> • Twitter: @BIOVentures

WIPO Re:Search Advancing Collaboration –
GSK + UCSD:

GlaxoSmithKline (GSK) provided a University of California, San Diego (UCSD) researcher with its Published Kinase Inhibitor Set 1 (PKIS1) and Set 2 (PKIS2) to screen against *Schistosoma mansoni*.