MMV
Medicines for Malaria Venture

Data from MMV-supported research now in the public domain

Geneva, 20 May 2010. In an unprecedented move, data from three new projects supported by Medicines for Malaria Venture have been made available in the public domain. The first, conducted by GlaxoSmithKline (GSK) has identified promising leads to develop new antimalarials. The second, the screening of compounds of the Genomics Institute of the Novartis Research Foundation (GNF) has been released to the European Bioinformatics Institute (EMBL-EBI). The third, conducted by Prof. Kip Guy at St Jude Children's Research Hospital, Memphis, will also be released to the EMBL-EBI this week.

The GSK research comes from a year-long screening of more than 2 million compounds in GSK's chemical library to identify those that could inhibit the malaria parasite, *P. falciparum,* and reports on an analysis of over 13,500 compounds that showed greatest activity. The largest group of compounds whose mode of action is understood was kinase inhibitors. The study also identified compounds that might be inhibiting processes in human red blood cells necessary for the parasite's survival. This opens up a novel possibility of fighting infection by halting these processes rather than stopping the malaria parasite itself.

All these data are available online through the European Bioinformatics Institute (EMBL-EBI) http://www.ebi.ac.uk/chemblntd/download, Collaborative Drug Discovery http://www.collaborativedrug.com/ and PubChem from the National Library of Medicine (NIH) http://pubchem.ncbi.nlm.nih.gov/ . Together with added intelligence from a publication in *Nature*[1], scientists globally have been given thousands of chemical starting points to stimulate their research into this deadly disease.

Data from part of an earlier screen from the Genomics Institute of the Novartis Research Foundation are also being reported. Over 800,000 compounds from external sources were screened, and over 5,600 compounds have confirmed activity on the parasite. The chemical structures of these compounds, the 50% inhibitory concentrations against *P. falciparum* growth, and general cytotoxicity have also recently been released to the EMBL-EBI.

The other important research described in the same edition of *Nature* this week is reported from St Jude Children's Research Hospital[2]. Prof Guy's team employed a screen of over 300,000 unique chemical compounds against *P.falciparum* malaria to yield 1,100 potent and selective hits. The group then examined the relationship between a representative set of 172 screening hits and existing drugs with respect to the biological targets, cross resistance and synergy. In addition, it screened the set against over 60 antimalarial protein targets. This wealth of information revealed that whilst novel inhibitors of validated targets were identified, a majority appeared to act against new targets. These findings thus provide the community of malaria researchers with new starting points for antimalarial drug discovery, and the data are available at EMBL-EBI as well as http://www.stjuderesearch.org/guy/data/malaria/.

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[1] Gamo, F.-J. *et al. Nature* 465, 305–310 (2010)
[2] Guiguemde, W. A. *et al. Nature* 465, 311–315 (2010)

"These are exciting developments in the world of antimalarial drug research," said Dr Tim Wells, MMV's Chief Scientific Officer. "Until now, we were proud that our partners had completed the screens. But now, placing the data of over 20 000 active compounds into the public domain, will give the global malaria community a considerable resource to drive forward the development of new medicines for malaria. This is not something that one group can do alone, but we know it can be done: From the original Novartis screening, for example, the first family of compounds is now in preclinical development. This is extremely promising. This new generation of compounds with new modes of action is very important in the long term fight against malaria, since we know that we will need new medicines to overcome the threat of artemisinin resistance within the next ten years."

Data on over 20,000 compounds will be available at:
http://www.ebi.ac.uk/chemblntd/download
http://www.collaborativedrug.com/
http://pubchem.ncbi.nlm.nih.gov/
http://www.stjuderesearch.org/guy/data/malaria/

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About Medicines for Malaria Venture (MMV)

Medicines for Malaria Venture, a not-for-profit public-private partnership, was established as a foundation in Switzerland in1999. It is dedicated to the reduction of the malaria burden in disease-endemic countries with the discovery, development and delivery of new, effective and affordable antimalarial drugs. Our vision is a world in which these innovative medicines will cure and protect the vulnerable and under-served populations at risk of malaria, and help to ultimately eradicate this terrible disease.

MMV's mission is to bring public, private and philanthropic sector partners together to fund and manage the discovery, development and delivery of new medicines for the treatment and prevention of malaria in disease-endemic countries.

MMV is currently managing the largest portfolio of antimalarial R&D projects ever assembled; almost 60 antimalarial projects in partnership with over 130 pharmaceutical, academic, and endemic-country partners in 44 countries. In 2009, in collaboration with partners, MMV launched its first ever product – a sweet-tasting, paediatric formulation, Coartem® Dispersible. Two other MMV-supported artemisinin combination therapies, Eurartesim™ and Pyramax®, have been submitted to the EMA for regulatory approval. Seven further potential medicines are in clinical development. The portfolio of discovery projects includes 19 completely new classes of compounds.

With over USD 480 million received and committed from government agencies, private foundations, international organizations, and corporate foundations; research carried out in the labs and clinical trial sites of its research partners; and industry partners contributing to the effort with staff, facilities, and technology, MMV is well set to deliver a range of new medicines. These will be the tip of the spear that, with an array of other tools and strategies, will finally be capable of defeating malaria once and for all.

About EMBL-EBI

The European Bioinformatics Institute (EBI) is part of the European Molecular Biology Laboratory (EMBL) and is located on the Wellcome Trust Genome Campus in Hinxton near Cambridge (UK). The EBI grew out of EMBL's pioneering work in providing public biological databases to the research community. It hosts some of the world's most important collections of biological data, including DNA sequences (EMBL-Bank), protein sequences (UniProt), animal genomes (Ensembl), three-dimensional structures (the Protein Databank in Europe), data from gene expression experiments (ArrayExpress), protein-protein interactions (IntAct) and pathway information (Reactome). The EBI hosts several research groups and its scientists continually develop new tools for the biocomputing community.
www.ebi.ac.uk

About Collaborative Drug Discovery (CDD)

CDD hosts the most widely used drug discovery cloud platform on the market. "CDD Vault" is the secure, private industrial-strength database combining traditional drug discovery informatics (registration and SAR) with social networking capabilities. "CDD Collaborate" enables real-time collaboration by securely exchanging selected confidential data with external researchers. "CDD Public" has unique content. For more information, visit www.collaborativedrug.com

About the National Library of Medicine (NLM)

The National Library of Medicine (http://www.nlm.nih.gov/) is the world's largest library of the health sciences. NLM is a part of the National Institutes of Health (NIH), a component of the U.S. Department of Health and Human Services. NIH is the primary federal agency for conducting and supporting basic, clinical and translational medical research, and it investigates the causes, treatments, and cures for both common and rare diseases. For more information about NIH and its programs, visit www.nih.gov.