

Coartem® Dispersible

An Innovation in Treating Children with Malaria



Nine out of ten malaria deaths occur in sub-Saharan Africa, and the vast majority of malaria-related deaths occur in children¹

- Malaria kills over 700,000 children under five every year – that is one child every 30 seconds¹
- Malaria is preventable and treatable, but it is a disease that stems from and causes poverty

Coartem® Dispersible is the first artemisinin-based combination therapy (ACT) developed especially for children with malaria

- Coartem Dispersible was developed by Novartis and Medicines for Malaria Venture (MMV) to address specific treatment needs of millions of children with malaria

- Coartem® Dispersible is a new pediatric formulation of Coartem® (artemether/lumefantrine 20 mg/120 mg) used for the treatment of uncomplicated malaria in infants and children
- Coartem® Dispersible contains the same amounts of artemether and lumefantrine as Coartem®, the parent drug and leading ACT in Africa
- The World Health Organization recommends the use of ACTs for the treatment of malaria. Combining two or more malaria drugs has the potential to prevent or delay the development of resistance²
- Until now, many parents crushed bitter-tasting antimalarial tablets for their children to swallow
- The new sweet-tasting Coartem® Dispersible tablets dissolve quickly in small amounts of water, easing administration and ensuring effective dosing for children

Coartem® Dispersible tablets are a highly-effective and well-tolerated by children

- Coartem® Dispersible was approved by Swissmedic in 2008 and by several regulatory authorities in Africa
- A phase III study published in *The Lancet* showed that Coartem® Dispersible provides a high cure rate of 97.8%, which is comparable to that of Coartem (98.5%), and has a good safety profile³

Coartem® Dispersible is the first malaria innovation targeting children, resulting from a Public Private Partnership

- Developing new drugs for neglected diseases like malaria and increasing access to medicines in the developing world requires innovative and efficient collaborations and partnerships
- Responding to the international community's call for the development of pediatric formulations of medicines, Novartis and MMV signed a collaboration agreement in 2004 to develop the first ACT especially for children with malaria.
- Novartis' collaboration with MMV is a model example of how Public Private Partnerships can truly advance the fight against malaria and other neglected diseases



Coartem® Dispersible emphasizes Novartis' and MMV's commitment to deliver medicines to patients in the developing world

- Coartem® Dispersible will be provided by Novartis to the public sector without profit to malaria-endemic countries
- Novartis and MMV provide malaria case management educational programs, which include hands-on training for local healthcare workers, customized training manuals, and user-friendly packaging to improve patient compliance and ensure proper use

Coartem Dispersible was developed in collaboration with academic centers in sub-Saharan Africa

- The development of Coartem Dispersible consisted of four studies that were performed between 2004 and 2008. Two studies were pharmacokinetic studies performed in healthy volunteers in Europe. The other two studies were performed in sub-Saharan Africa, one in healthy schoolchildren, one in infants and children with malaria .
- In a first study performed in Tanzania, schoolchildren evaluated several flavours to be used in the future Coartem Dispersible formulation and documented their favourite one on a visual scale. The current cherry flavour was selected for the Coartem Dispersible formulation which was then developed technically in house at Novartis Pharma.
- Once a pharmacokinetic study showed similar bioavailability between the tablet and the dispersible tablet, an international multi-center study was performed in infants and children with malaria in order to prove that the new formulation was not inferior to the tablet when crushed, in terms of efficacy, as well as to establish the tolerability and safety profile of Coartem Dispersible. This study involved 899 patients and was performed at 7 sites in 5 sub-Saharan countries : Benin, Kenya , Mali , Mozambique and Tanzania. (Abdulla S et al, Lancet 2008;372: 1819-27)
- The last study in the development was a pharmacokinetic study in healthy volunteers which proved bioequivalence between Coartem Dispersible manufactured on a small scale, such as tested in the pivotal clinical trial, and Coartem Dispersible manufactured on a production scale.

About Novartis

Novartis AG provides healthcare solutions that address the evolving needs of patients and societies. Focused solely on healthcare, Novartis offers a diversified portfolio to best meet these needs: innovative medicines, cost-saving generic pharmaceuticals, preventive vaccines, diagnostic tools and consumer health products. Novartis is the only company with leading positions in these areas. In 2007, the Group's continuing operations (excluding divestments in 2007) achieved net sales of USD 38.1 billion and net income of USD 6.5 billion. Approximately USD 6.4 billion was invested in R&D activities throughout the Group. Headquartered in Basel, Switzerland, Novartis Group companies employ approximately 97,000 full-time associates and operate in over 140 countries around the world. For more information, please visit <http://www.novartis.com>.

Novartis was named a Super Sector Leader by the Dow Jones Sustainability Index (DJSI) in 2007. In the same year, 66 million patients around the world benefited from Novartis programs valued at USD 937 million. These initiatives range from drug donation and research programs to combat neglected diseases like malaria, tuberculosis and leprosy in developing nations, to patient assistance programs that help cancer patients receive the most innovative and effective treatments available. For further information, please consult <http://www.novartis.com>.

About Medicines for Malaria Venture

Medicines for Malaria Venture (MMV) is a non-profit organization created to discover, develop and deliver effective and affordable antimalarial drugs through public-private partnerships. MMV's vision is a world in which these innovative medicines will cure and protect the millions at risk of malaria and help to ultimately eradicate this terrible disease.

MMV is currently managing the largest-ever portfolio of antimalarial projects in collaboration with over 100 pharmaceutical, academic, and endemic-country partners in 38 countries. The portfolio includes 19 completely new classes of compounds. New and improved treatment solutions are urgently needed for the 2.4 billion people at risk from malaria. MMV is working to ensure that its products will have the greatest possible public health impact and, most importantly, save lives. For more information, please consult <http://www.mmv.org>.

References

- 1 African Malaria Day Fact Sheet. World Health Organization. Available at <http://www.rbm.who.int/docs/AMD/factsheet>.
- 2 Children and Malaria. World Health Organization Roll Back Malaria Web site. Available at: http://www.rbm.who.int/cmcc_upload/0/000/015/367/RBMInfosheet_6.pdf.
- 3 Salim et al, Efficacy and safety of artemether-lumefantrine dispersible tablet in African infants and children with uncomplicated malaria: a randomised, investigator-blinded, multi-centre comparison with the crushed commercial tablet; *The Lancet* (2008) www.thelancet.com; published online October 15, 2008 DOI:10.1016/S0140-6736(08)61492-0