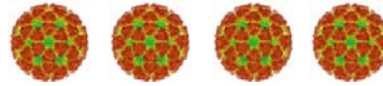


# Therapeutic human monoclonal antibodies against Dengue virus



■ Countries or areas where dengue has been reported

Note: Lines define the boundaries of year-round survival of the dengue mosquito vector, *Aedes aegypti*, and represents areas where dengue transmission is possible.



**Dr. Pongrama Ramasoota**

**Faculty of Tropical Medicine, Mahidol U.**

**Collaborative Professor, Osaka University**



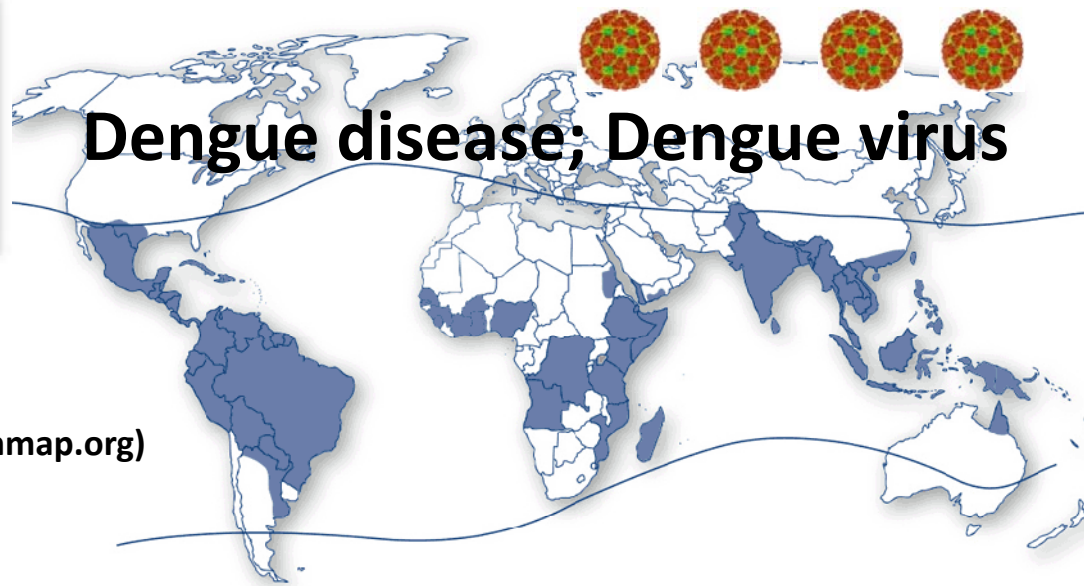
Center of Excellence for Antibody Research

— C E A R —





Aedes aegypti mosquito



# Dengue disease; Dengue virus

(<http://www.healthmap.org>)

■ Countries or areas where dengue has been reported  
Note: Lines define the boundaries of year-round survival of the dengue mosquito vector,



**3.9 billion peoples live in dengue endemic countries / year**

**100 million dengue symptomatic cases / year**

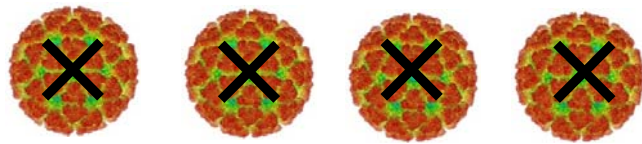
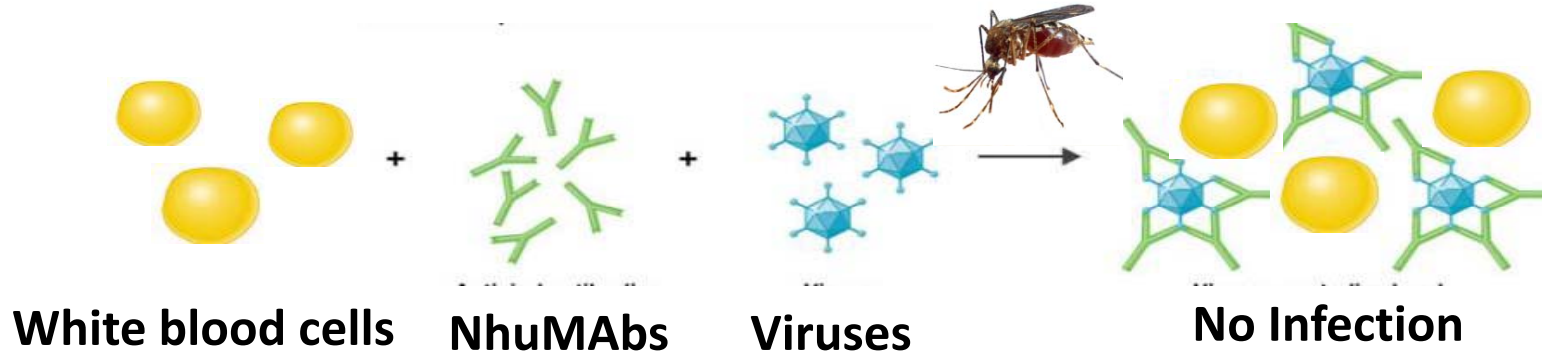
**30,000 cases die from severe dengue / year**

**No specific drugs available**





# Neutralizing Human MAbs (NhuMAbs)



Dengue-virus serotype neutralizing antibodies  
WO 2013035345 A3

**90-100% killing activity DENV1-4**



**Pre-clinical test in mice and monkey**

<b>Issued in;</b> 1. USA 2. Japan, 3. Australia 4. India, 5. Indonesia 6. Malaysia 7. Phillipines 8. Singapore 9. Vietnam 10. Laos 11. Thailand	Publication number	WO2013035345 A3
	Publication type	Application
	Application number	PCT/JP2012/005699
	Publication date	Sep 6, 2013
	Filing date	Sep 7, 2012
	Priority date ?	Sep 9, 2011
	Also published as	WO2013035345A2
	Inventors	Chayanee Seththapramote, Tadahiro Sasaki, Motoki Kuhara, Pongrama Ramasoota, Aree Thattiyaphong, Surapee Anantapreecha, Pathom Sawanpanyalert, Yoshinobu Okuno, Kazuyoshi Ikuta, Atchareeya A-nuegoonpipat, Panadda Dhepakson, Apichai Prachasuphap, Less «
	Applicant	Osaka University, The Research Foundation For Microbial Diseases Of Osaka University, Medical And Biological Laboratories Co., Ltd, Mahidol University, Department of Medical Sciences (DMSC), Less «
	Export Citation	BiBTeX, EndNote, RefMan
	Classifications (6)   Legal Events (7)	

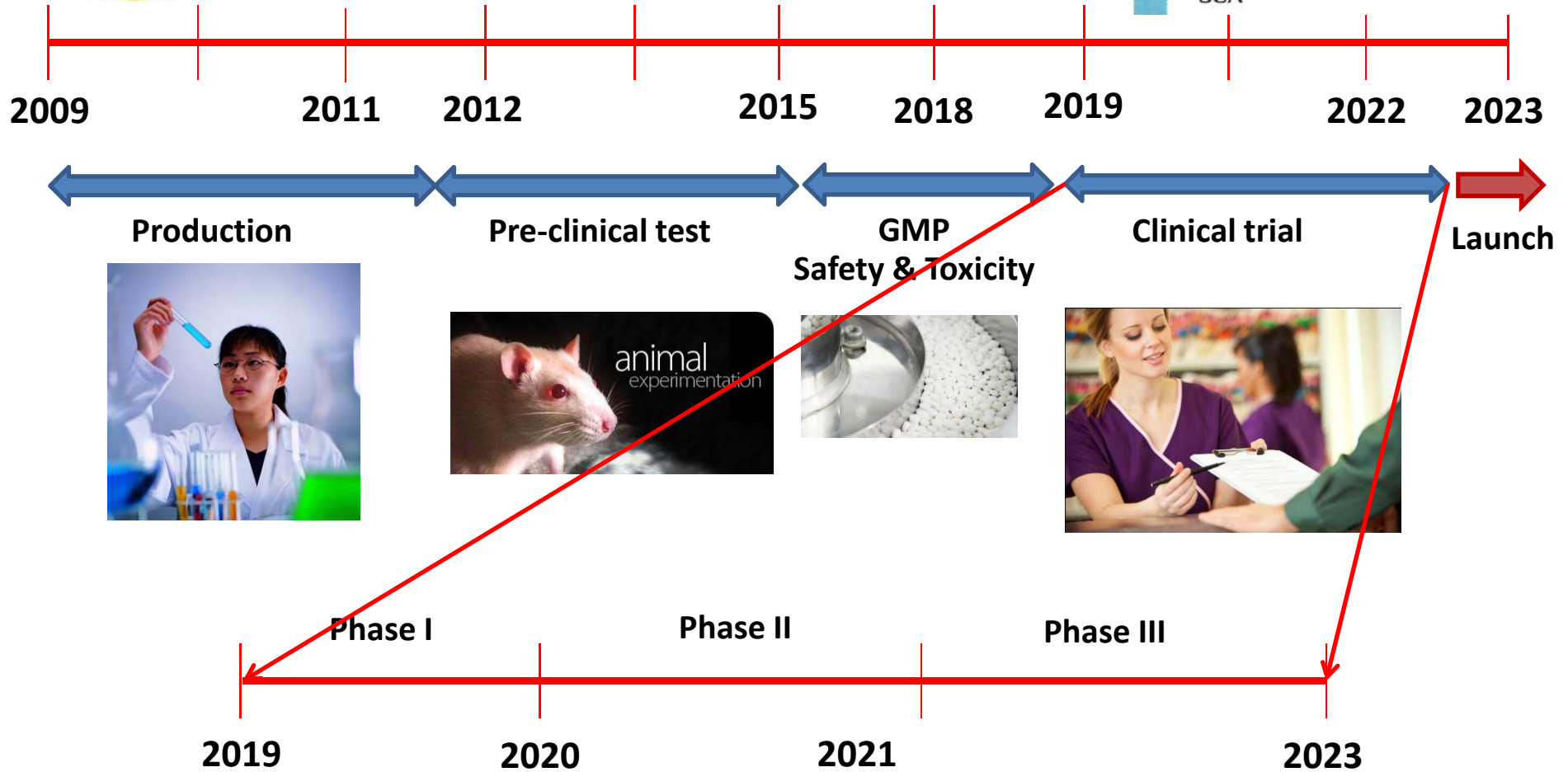


# Milestones



**John Kaundinya PhD**  
President & Chief Operating Officer

380 Woodview Avenue  
Morgan Hill CA 95037  
USA



FDA approved

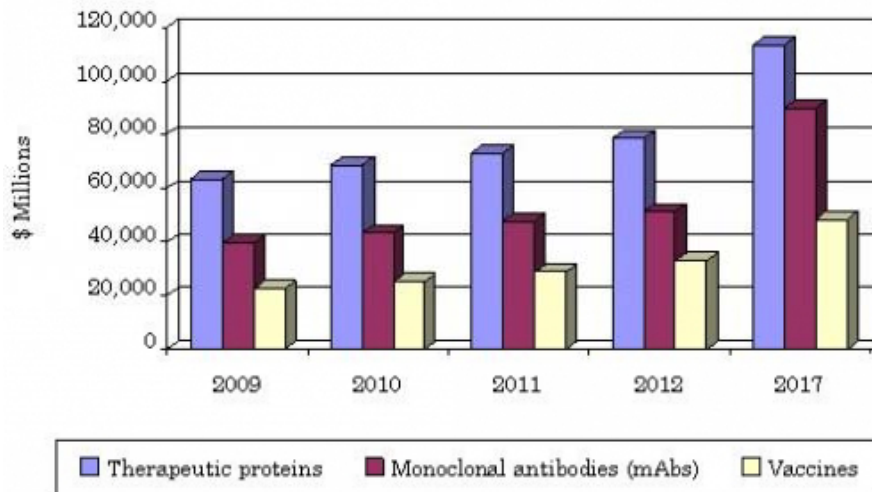
**200 million baht**



# Business Model

## SUMMARY FIGURE

GLOBAL BIOLOGICS MARKET FORECAST BY TYPE OF PRODUCT, 2009-2017 (\$ MILLIONS)



[http://www.bccresearch.com/pressroom/bio/global-market-biologics-reach-nearly-\\$252-billion-2017](http://www.bccresearch.com/pressroom/bio/global-market-biologics-reach-nearly-$252-billion-2017)

**300% profit**

**Dr. Pongrama Ramasoota**  
**E-mail: pongrama.ram@mahidol.ac.th**

Estimated if only 1% from 100 million Dengue cases will use our New Drug

Cost and profit	1 dose	Total vol (1 million)
Cost	Production 500	500 millions B
	Clinical trials 500	500 million B
	R & D, Patents 500	500 million B
<b>Total cost</b>	<b>1,500</b>	<b>1.5 billion B</b>
<b>Sell</b>	<b>5,000</b>	<b>5 billion B</b>
<b>Profit</b>	<b>3,500</b>	<b>3.5 billion B</b>