



BEST  
SCIENCE  
FOR THE MOST  
NEGLECTED

## THE EXPERIENCE OF DNDi: AN ALTERNATIVE “DELINKED” MODEL FOR NEEDS-DRIVEN R&D

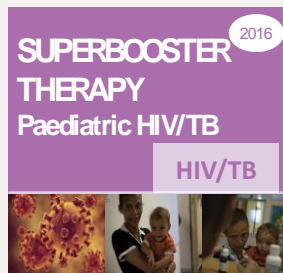
Knowledge Ecology International Meeting on Proposals to Delink R&D Costs from Drug Prices

Washington, DC

December 2, 2016

Rachel M. Cohen, Regional Executive Director, DNDi North America

# 7 New Treatments Delivered/Recommended



- ✓ Easy to use
- ✓ Affordable
- ✓ Field-adapted
- ✓ Non-patented

- **30 projects, 8 disease areas**
- **17 potential new chemical entities**
- **Over 160 partnerships**, most in endemic countries
- **160 staff**, half in endemic countries & 700 people working on DNDi projects
- **~ \$450 million** raised from public and private sources
- **4 regional disease-specific clinical trial platforms/networks** and several technology transfers

# DNDi R&D Portfolio (June 2016)

17 new chemical entities in the pipeline

	Research			Translation			Development		Implementation
	Screen	Hit to Lead	Lead Opt.	Pre-clinical	Phase I	Phase IIa/PoC	Phase IIb/III	Registration	Access
HAT			SCYX-1330682* SCYX-1608210 oxaborole			SCYX-7158* oxaborole	Fexinidazole*		NECT Nifurtimox-Eflornithine Combination Therapy
Leishmaniasis	Screening	Leish H2L	DNDI-5421* DNDI-5610 oxaborole  Amino pyrazoles*  CGH VL Series 1*	DNDI-6148* oxaborole  DNDI-0690* nitroimidazole	Fexi/MF Combination*		New Treatments for HIV/VL  New Treatments for PKDL  MF/Paromomycin Combo for Africa	New VL Treatments Latin America	SSG&PM Africa  New VL Treatments Asia
Chagas	Screening	Chagas H2L	Chagas Lead Opt  Biomarkers			New Benz Regimens +/- fosravuconazole*  Fexinidazole*			Benznidazole Paediatric Dosage Form
Filaria	Screening		Macro Filaricide 3*	AbbV4083* TylaMac	Emodepside*				
Pediatric HIV					Two '4-in-1' LPV/r FDC granules		LPV/r pellets with dual NRTI		Superbooster Therapy Pediatric HIV/TB
HCV						Ravidasvir/ Sofosbuvir*			Malaria FDC ASAQ
Mycetoma						Fosravuconazole*			Malaria FDC ASMQ

# DNDi as Experiment in ‘Innovation for Access’: Practical Illustration of Delinkage

- ‘Delinked’ funding model does not require recouping R&D investments or financing future R&D through sales or revenues generated by IP
- IP policy ensures that treatments are affordable, access is equitable, and products are developed as public goods
- Public and private contributions pay for the cost of R&D upfront (grant approach), though open to exploring
  - 50/50 public/private
  - No single donors contributes >25% of overall budget (safeguards autonomy, scientific decision-making, etc.)
- Allows DNDi to independently identify needs, gaps, and priorities based on patient needs; promote sharing of research knowledge and data; and price products at ‘lowest sustainable price’

# Key Pillars of DNDi Model (1 / 2)

## 1. Patients' needs at the center of the R&D process

- Therapeutic impact as most important driving force (role of founding partners, e.g. MSF, endemic countries)
- Target product profiles (TPPs) drive R&D decision-making (ensuring that, by design, products are adapted to 'field conditions' and aim for maximum affordability)
- Commitment to research capacity-strengthening
- Continuous assessment of needs and landscape

## 2. Scientific access to data and knowledge and patient access to medicines essential

- 'Gold standard' licensing terms
- Use of IP flexibilities for research purposes and support for use of TRIPS flexibilities where IP barriers exist (e.g. HCV)
- 'Open source' models for drug discovery (NTD Booster, etc.)

# Key Pillars of DNDi Model (2/2)

## BIG PHARMA'S - COST-CUTTING CHALLENGER -

### 3. Decreasing R&D costs through partnerships and collaboration

### 4. Strengthening and harmonizing regulatory mechanisms

Hours. Next came the river crossing in a slender canoe. When Nathalie Strub Wourgaft finally reached her destination, a clinic in the heart of the Democratic Republic of the Congo, she was exhausted. But the real work, she discovered, had just begun.

It was July 2010 and the clinic was soon to launch trials of a treatment for sleeping sickness, a deadly tropical disease. Yet it was woefully unprepared. Refrigerators, computers, generators and fuel would all have to be shipped to the clinic. The DNDi team had to collect and transport the medicines, and there was a very real possibility in this war-weary region.

This was a far cry from Wourgaft's former life as a top executive in the pharmaceutical industry, where she had worked for several years. As a medical director for the innovative Drugs for Neglected Diseases initiative (DNDi), she was confident that the clinic could handle the work. She was right. With data from this site and others, the DNDi will next year seek approval to develop a vaccine against the disease. The DNDi has also improved its regulatory mechanisms, and it has now received approval for two vaccines against sleeping sickness, malaria, Chagas' disease and a form of leishmaniasis called kala-azar. And it has put another 26 drugs into development. It has done this with US\$290 million — about one-quarter of what a typical pharmaceutical company would spend to develop just one drug. The model for its success is the product development partnership (PDP), a style of non-profit organization that became popular in the early 2000s. PDPs keep costs down through collaboration — with universities, governments and the pharmaceutical industry. And because the diseases they target typically affect the world's poorest people, and so are neglected by for-profit companies, the DNDi and groups like it face little competitive pressure. They also have lower hurdles to prove that their drugs vastly improve lives.

BY MY MAXMEN

Now, policymakers are beginning to wonder whether their methods might work more broadly. "For a long time, people thought about R&D as so complicated that it could only be done by the biggest for-profit firms in the world," says Sue-rie Moon, a global-health researcher at the Harvard T.H. Chan School of Public Health in Cambridge, Massachusetts, who studied PDPs and joined the DNDi's board of directors in 2011. "I think we are at a point today where we can begin to take lessons from their experience and begin to apply to this non-neglected disease," she says. The DNDi's research on alternatives to pricey drugs, such as malaria, is an effort to create antibiotics for drug-resistant infections, a problem that pharmaceutical companies have been slow to contend with. If successful, the work could challenge standard assumptions about drug development, and potentially rein in the runaway costs of pharmaceutical R&D. The DNDi's financial figures show that it can do this at a fraction of what it costs for R&D.

#### THE PIPELINE

When medical charity Médecins Sans Frontières (MSF; also known as Doctors without Borders) won the Nobel Peace Prize in 1999, its members decried the lack of lifesaving drugs for diseases of the poor, and used the Nobel prize money to kick-start the DNDi. Pécoul, a soft-spoken Frenchman who had been with MSF for 20 years, took the helm when the initiative launched in Geneva, Switzerland, in 2003. Pharmaceutical executives were sceptical. Drug development is an expensive, complex, decade-long endeavour. "In the early days, we saw DNDi as a bit amateurish," recalls François Bompert, a medical director at the Paris-based drug company Sanofi. "We thought, they cannot be serious."

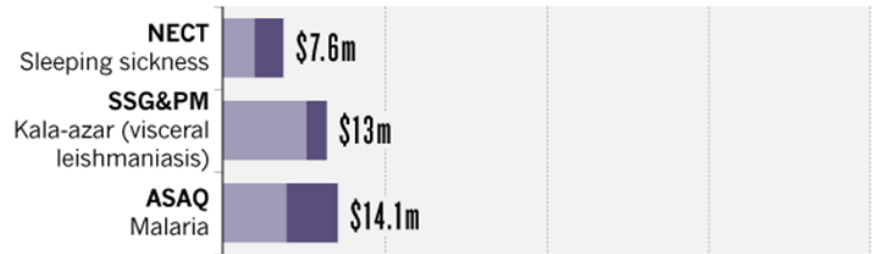
Pécoul and his team started with a safe project. In 2001, the World Health Organization had called for malaria drugs that combined ingredients to slow the spread of resistance to the single best available agent, artemisinin. But the poverty of most people who need malaria drugs meant that the private sector had little incentive to create and test such combination therapies. Pécoul contacted Sanofi, which owned two malaria treatments: one based on artemisinin, and the other on the

#### DISCOUNT DRUGS

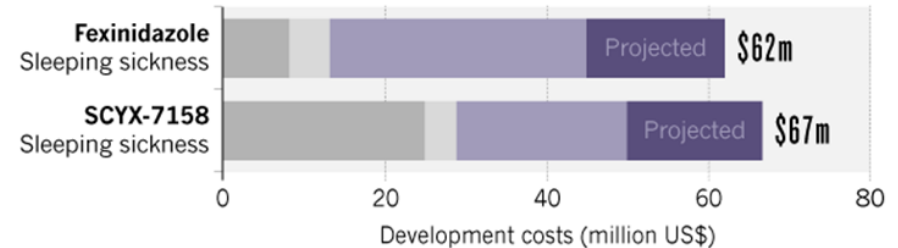
The Drugs for Neglected Diseases initiative (DNDi) has produced several drugs in the past decade for a fraction of what pharmaceutical companies are said to spend. Factoring in the cost of failed candidates (not included below), the DNDi estimates that it can develop combination therapies for between US\$10 million and \$45 million, and make a completely new drug from scratch for \$110 million to \$170 million.

- Research
- Early safety and proof-of-concept trials
- Late safety and efficacy trials
- Access and additional studies

#### COMBINATION THERAPIES



#### NOVEL DRUGS



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\*Projected estimates until 2020

# Lessons for International Policy Negotiations?

- Establish globally agreed R&D needs, gaps, priorities linked to...
- Adequate, sustainable (public) financing ('push' funding and appropriately designed 'pull' incentives, e.g. prizes) linked to...
- Globally agreed norms based on principle of delinkage:
  - Accessibility (availability/affordability)
  - Openness, transparency, and access to knowledge
  - Pro-public health IP management and equitable licensing
  - Scientific and technological cooperation
  - Essential regulatory standards





# blood

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## Price of drugs for chronic myeloid leukemia (CML), reflection of the unsustainable cancer drug prices: perspective of CML Experts

Experts in chronic myeloid leukemia



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5 November at 14:25 · 🌐

Today no laws prevent drug companies from doubling or tripling prices. So they just do it – and get away with it. The soaring cost of medicine is a major crisis and a moral issue.



### Here's how to send a message to Big Pharma

Democratic presidential candidate Bernie Sanders: I am encouraged to be voters will embrace Prop. 61 on Tuesday and send a powerful signal across nation that the days of unchecked drug company greed are numbered.

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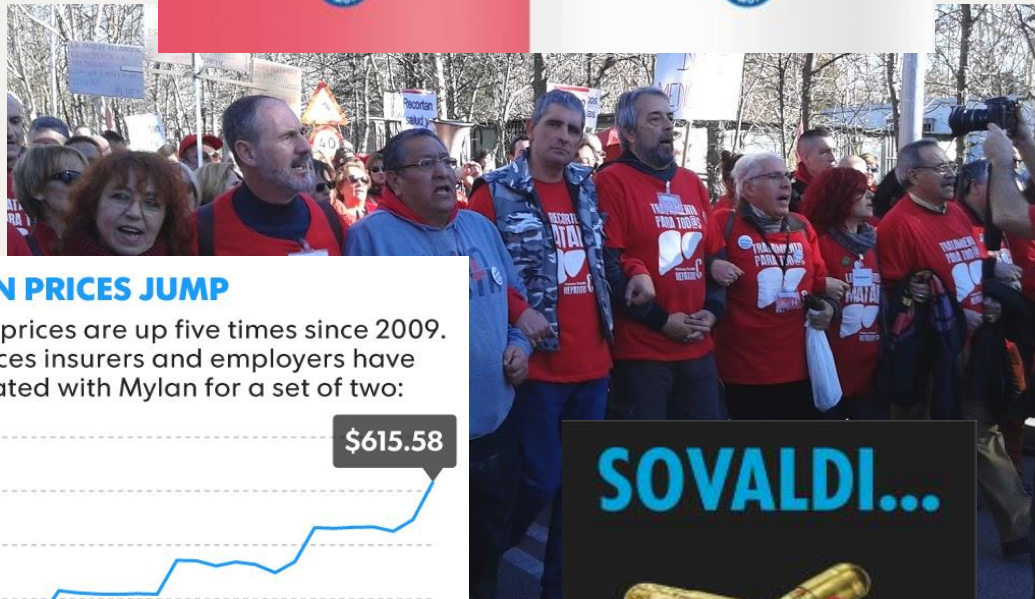


**AVEC L'IMMOBILIER ET LE PETROLE, QUEL EST L'UN DES MARCHÉS LES PLUS RENTABLES? LA MALADIE.**

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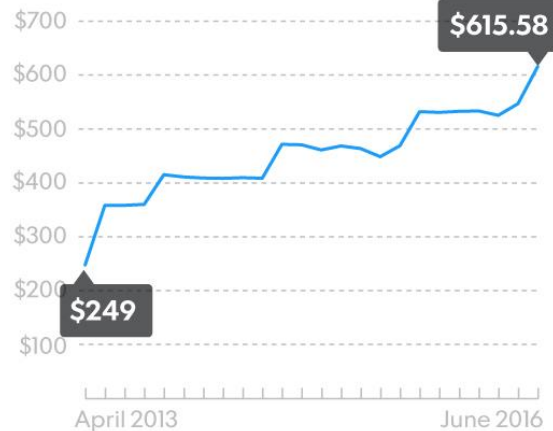
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### EPIPEN PRICES JUMP

EpiPen prices are up five times since 2009. The prices insurers and employers have negotiated with Mylan for a set of two:



SOURCE RX Savings Solutions  
Jim Sergent, USA TODAY



**SOVALDI...**

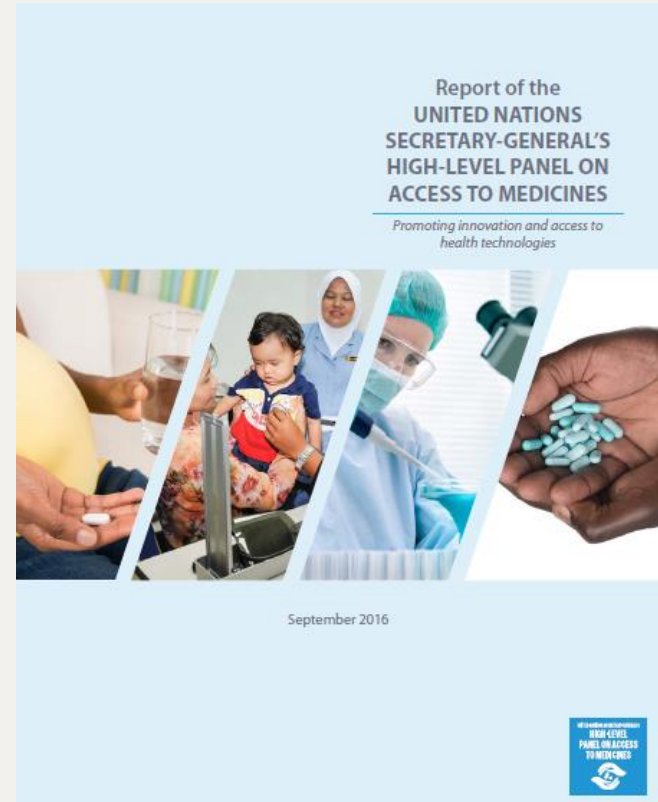
**\$84,000**

**SO EXPENSIVE**

INFLU + TAG

# UN HLP on A2M

- Key innovation policy recommendations:
  - Initiate intergovernmental negotiations for a global R&D convention that delinks the cost of innovation from prices;
  - Negotiate a Code of Principles to be adopted by all R&D players, ensuring innovation delivers affordable and accessible products;
  - Require transparency from all R&D players, especially on R&D costs; and
  - Ensure ‘public return’ on taxpayer-funded contributions to R&D.



# From Rhetoric to Action: Opportunities for Concrete Change

- AMR, pandemic preparedness, NTDs: opportunities for new funding and/or approaches, application of progressive principles (G20)
- Implementation of specific recommendations at WHO, WTO, Human Rights Council
- Global Health and Foreign Policy resolution and future UN follow up
- National/regional initiatives and efforts at policy change
- In the meantime, development and voluntary adoption of progressive policy steps, incl Code of Principles by key R&D actors and funders