

Esperanza Medicines Foundation

Review of Activities

January to November/2007

Alex Matter

CEO/ Chairman EMF

Basel, Bildungszentrum – 14th November 2007



Agenda

- Introduction – Highlights – Hurdles
- Is the rationale still valid?
- Projects and Partners
- Organization
- Goals 2008

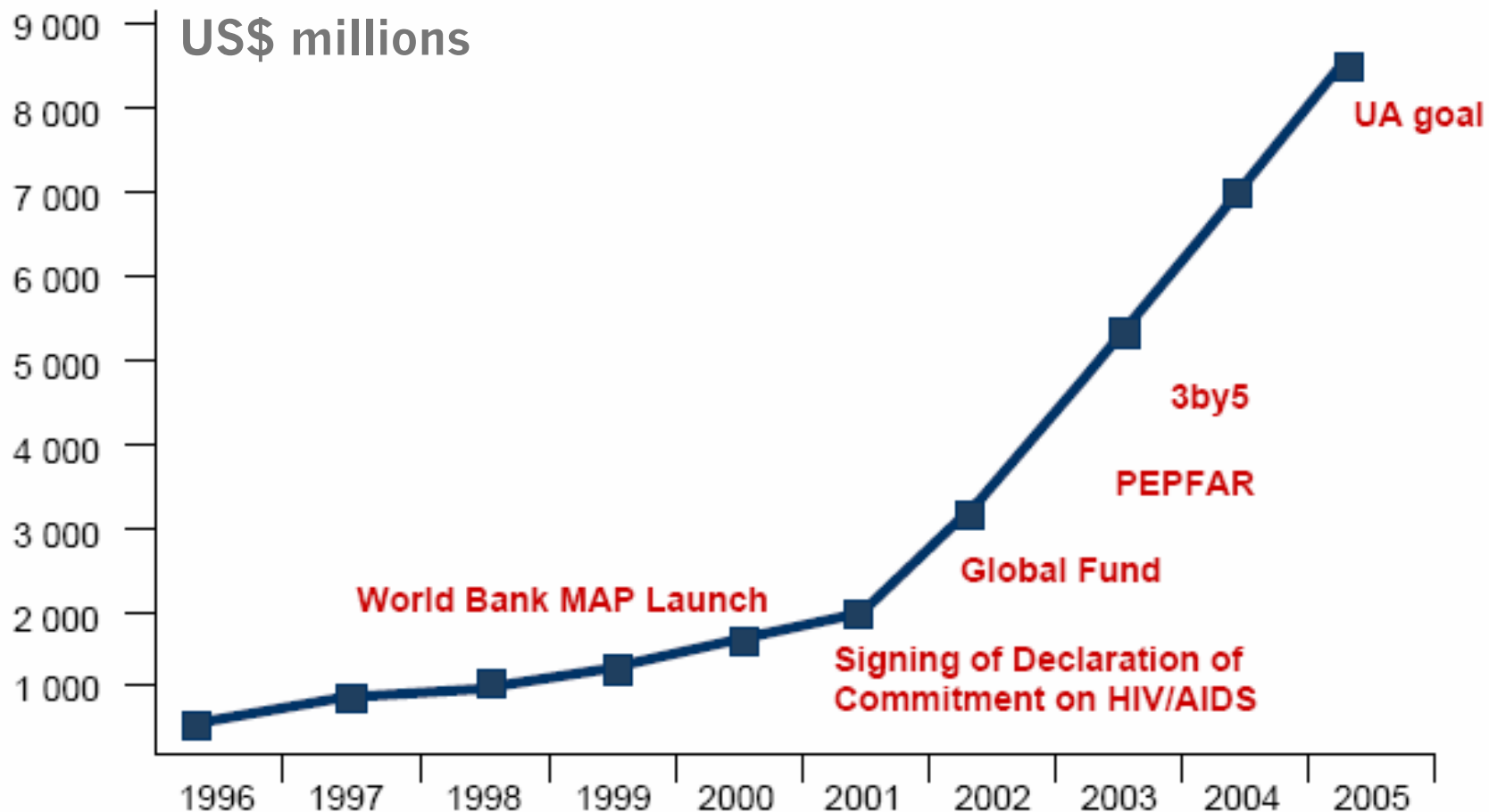
Rationale: is it still valid? (1/2)

- **The AIDS epidemics continues its spread throughout the developing world; currently (July 2007) it is estimated that 39 million people are infected world-wide, 24.6 million infected in Sub-Saharan Africa alone, with 2.1 million dying each year.**
- **Approx. seven million people are considered in need of treatment with antiretroviral (ARV) therapy. Despite a gigantic effort by the World Health Organization/UNAIDS, the Global Fund to fight AIDS, malaria and TB, PEPFAR, the Clinton Foundation, and other agencies as well as private donors, anti-retroviral treatment reaches now about 28% of needy people – an enormous increase, but 4.8 million require access to antiretroviral therapy**
- **Two years after starting therapy, 38.4% have stopped taking the pills. Reasons are side effects, extreme poverty, lack of transport, social ostracism**
- **Cost of monthly treatment is still between 7 and 11 CHF**

Rationale: is it still valid? (2/2)

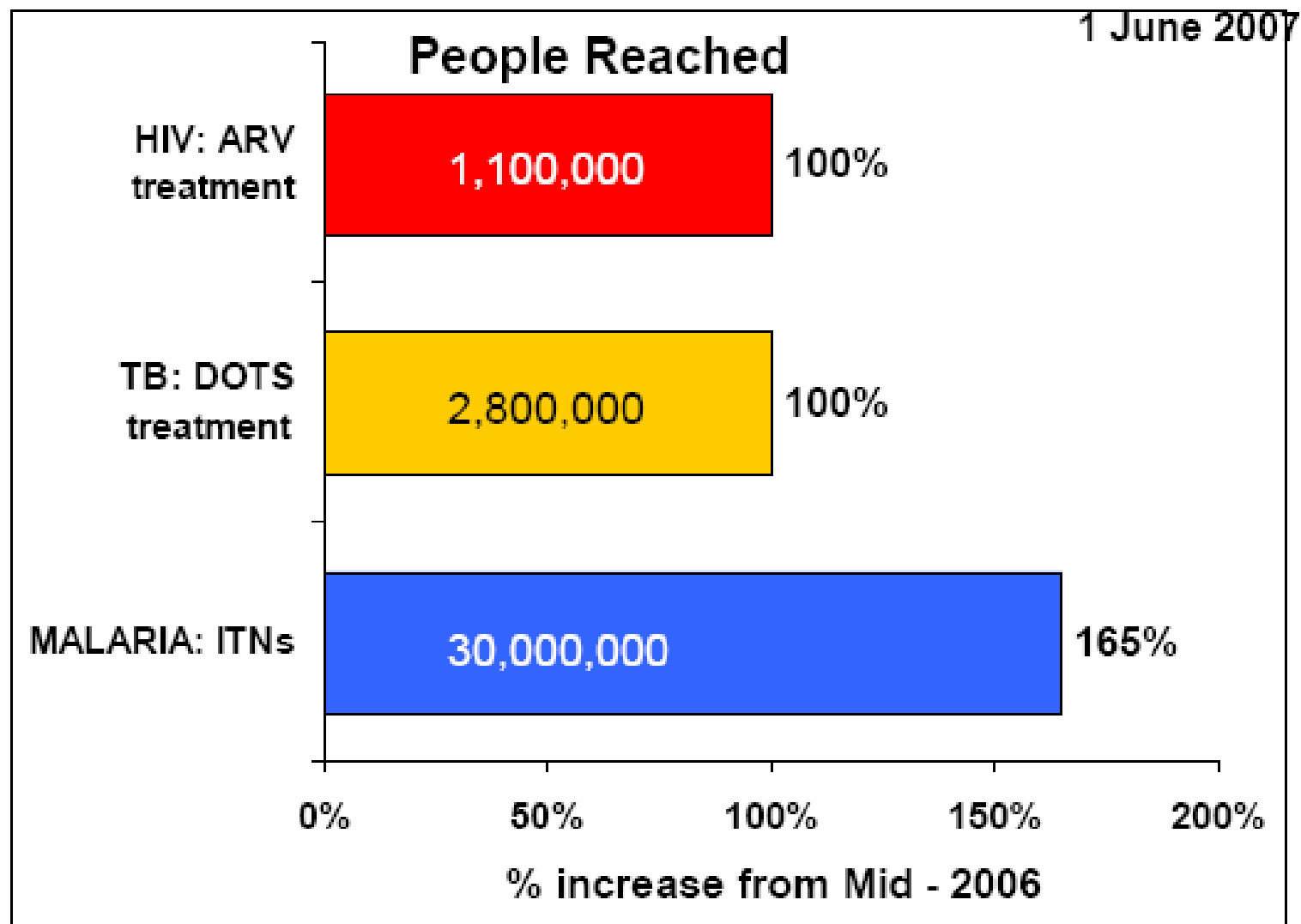
- **The cost of this effort is staggering: for 2007 a cost of 15 billion USD was calculated; for 2008, a financial need of 22 billion USD is currently estimated (Dr Peter Piot, Executive Director, UNAIDS, Jul.2005). This level of budgets will be required for the next decades.**
- **It is unlikely that the funds will be available – in 2007, about half of the calculated budget was made available. The budgets for the coming years are far from being accrued**

AIDS: Estimated total annual resources available 1996 – 2005

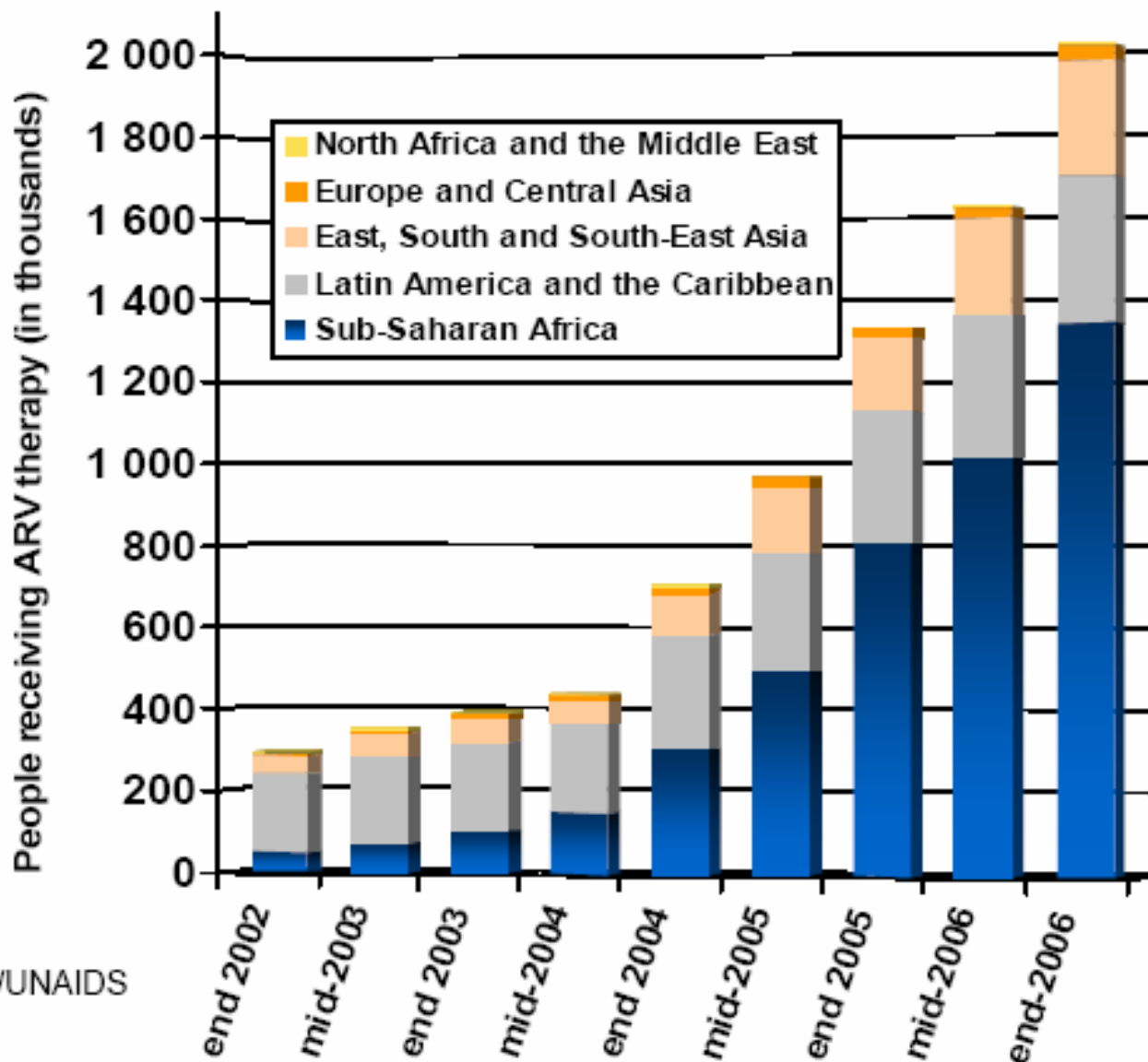


Adapted : *Lancet*, 2006; 368: 526–30

Global Fund: 3,000 lives saved everyday

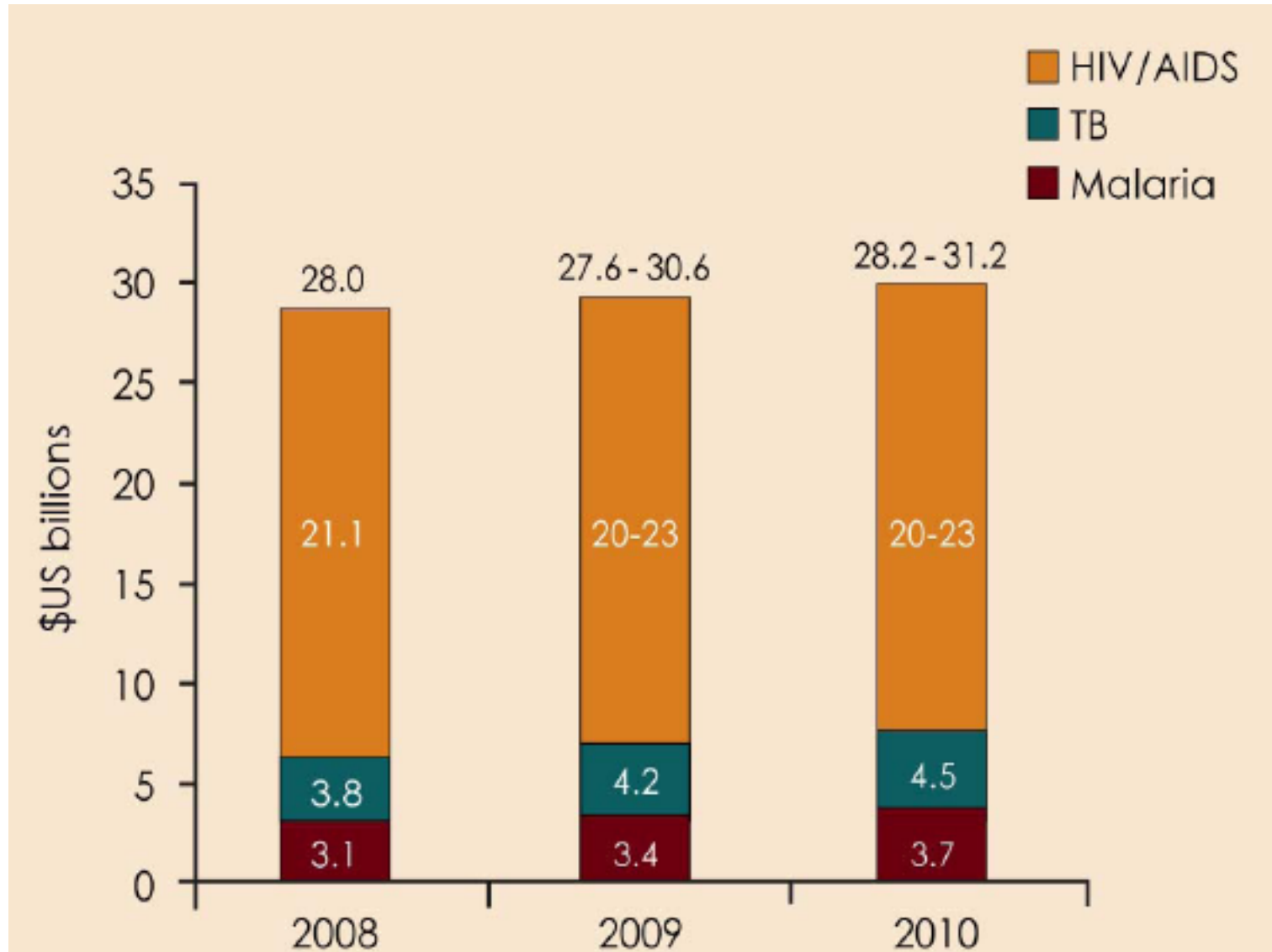


Number of people receiving ART in low and middle income countries end 2002 – end of 2006



WHO/UNAIDS

Global resource needs - the question of sustainability remains wide open!



Introduction – Highlights - Hurdles

Overall Assessment

- **Three projects in Switzerland were concluded successfully**
- **Rights acquired from Mintaka to three RANTES analogs**
- **Contract with NIH (non-exclusive rights to Cyanovirin N) in last stretches**
- **Two new collaborations at the CSIR, Pretoria initiated**
- **One new collaboration in at the ITM, Dar es Salaam, Tanzania at the discussion stage**
- **One new collaboration in Yaoundé, Cameroon at the concept stage**
- **Organization strengthened, expert support available**
- **One new Board member proposed; Head of Research proposed**

Finished Projects in Switzerland (1/2)

- Anti-HIV-1 activity of pure Natural Products (Natural Products Unit, NIBR, Novartis, Drs. F. Petersen & E. Schmitt, and InPheno, Basel, Drs. T. Klimkait & F. Hamy): very good progress, final selection of 5 plant-derived and 5 fungal/bacterial compounds made; Arctigenin from Arctium lappa seeds selected as first development candidate for systemic use. Nalanthanide (fungal origin) promising as well
- Heterologous expression of Cyanovirin-N, a topical microbicide candidate (Institute of Plant Sciences, ETH, Zurich, Prof. W. Gruissem, Carmen Faso) : transformed tobacco and cassava lines available with respectable activity (nanogram/microliter range)

Finished Projects in Switzerland (2/2)

- RANTES analogs for possible use as topical microbicides (Prof Robin Offord and Prof Oliver Hartley, Mintaka Foundation for Medical Research, Centre Médical Universitaire, Université de Genève) : very good progress, preparation; efficacy of 5P12- and 6P4-RANTES in vaginal macaque study demonstrated

Other opportunities

Plants with “known” antiviral compounds

- *Sutherlandia frutescens*
- *Moringa peregrina*
- *Artemisia annua*
- Plane tree, cortex contains Betulinic acid

Two new collaborations at the CSIR in Pretoria

1. Dr. Rachel Chikwambe and Dr Ereck Chakauya (PI):

- **Plant expression systems for anti-HIV topical microbicides – Optimising expression and testing of plant-made RANTES analogues as topical microbicides**
- **Cassava as a bioreactor for expression of Cyanovirin-N**

2. Dr. Vinesh Maharaj (PI):

- **Drug discovery of plants with anti-HIV properties, based on knowledge of traditional healers**

Established Partners / 2006

- Dr. Frank Petersen and Dr. Esther Schmitt, Natural Products Unit, Novartis Institutes for Biomedical Research, Novartis AG, Basel (source of pure NP)
- Dr. T. Klimkait / Dr. F. Hamy, InPheno AG, Basel (testing lab for anti-HIV1 activity of NP)
- Prof. W. Gruissem, Institute of Plant Sciences, ETH, Zürich (Ph.D. thesis of Ms Carmen Faso on Cyanovirin-N, a possible microbicide)
- Prof. Robin Offord and Prof. Oliver Hartley, CHUV, Université de Genève, Mintaka Foundation, CH (RANTES analogs as potential microbicides)
- Dr. Henri Zinsli, Münchenstein (BD&L expert) works pro bono with EMF in contractual matters
- Dr. Nigel Gericke, M.D., ethnobotanist in South Africa has started to work with EMF on a part time basis
- Dr. Sacha P. Sidjanski, Ph.D., parasitologist and Public Health expert, is Head of Funder Relations, on a part time basis
- Dr. Peter Graf, Pharma Novartis, Expert in Pharmacokinetics, work pro bono as project manager
- Dr. Günter Engel, NIBR, Novartis, will start on November 1 as Head of Development

New Partners in 2007: Dr. Henri Zinsli (Ph.D.)

(proposed as new Board member)

- **Dr. Zinsli, University St. Gallen, Switzerland**
- **Former Board member and co-founder of several European and US biotech companies (private and public)**
- **Several years co-founder, chairman and CEO of a global drug discovery company**
- **Currently, executive Chairman and co-founder of Covalys Biosciences AG and Dybly AG, a new pharmaceutical development start-up company (full time position)**
- **Until summer 2007 Board member of InPheno AG and currently advisor to the CEO of this company**
- **33 years with Ciba-Geigy AG (now Novartis AG), thereof 25 years in various senior management positions in the Pharmaceuticals Division both in Headquarters, in Germany and Japan. Head of the company's Global Anti-infectives Business and Deputy Head of Group Pharma Product Management, last position in the company Head of Corporate Business Development, involved in many research collaborations with biotech companies and managing the company's corporate venture capital investment.**

New Partners in 2007: Dr. Thomas Klimkait (Ph.D.)

(Head of Research)

Date & place of birth: May 27, 1957; Itzehoe, Germany

married, three adult children

Citizenship: German

Address: Lörrach, Germany

Employment

2002 - current (*part-time double appointment*) CEO at InPheno AG, Basel, Switzerland

1998 - current Head of Section Molecular Diagnostics,
Institute for Medical Microbiology, University of Basel
(*since 2004 as part-time double appointment*)

1990 - 1997 Senior Scientist, Novartis, Inc., Basel, Switzerland

1996 - 1997 Program Team Head
Biology, Oncology Research, Novartis, Inc., Basel

1990 - 1995 Project Leader: HIV-Regulation
Virology, Pharma Research Ciba-Geigy, Inc., Basel

1990 - 1994 Project Leader: HIV Antisense Inhibition
Virology, Pharma Research, Ciba-Geigy, Inc., Basel,

Scientific activity

>60 original publications in peer-reviewed international journals

New Partners in 2007: Dr. Thomas Klimkait (cont'd)

(proposed as Head of Research)

Education

- | | |
|------------------------|---|
| 7/2004 | Entrepreneurship Course; Babson College, Boston, MA, USA |
| 2/2004 | NETS Entrepreneurship-Award, Gebert-Rüf Foundation, Switzerland |
| 5/2002 | University of Basel, Switzerland: Venia docendi for Virology |
| 11/1996 | Course “Management of Research & Development”;
Brunel University, Middlesex, UK |
| 5/1989 - 1/1990 | Award as Visiting associate; NIAID, NIH Bethesda, MD, USA, (Lab of Molecular Microbiology; M.A. Martin) |
| 4/1987 - 4/1989 | Post doctoral Fellowship; Research Grant by German Research Foundation; NIAID, NIH, Bethesda, MD, USA; M.A. Martin |
| 4/1984-12/1986 | Ph.D. Thesis; Institute of Virology, Institute of Genetics, University of Cologne, Germany; W. Doerfler |

New Partners in 2007: Dr. Béatrice Molac

(Ph.D., Organic Chemistry, European Patent Attorney)

(Head of Patents)

Professional Experience

1.04.1973 – 31.5.2006 Patent attorney at Sandoz AG and Novartis Pharma AG, Basel, successively in dyestuffs, Endocrinology, Bone and Joint and then Transplantation

1.01.2000 Head, Group Pharma Patents Transplantation

17.08.1981 European Patent Attorney

Skills

Basic patent attorney work, management of patent portfolios, freedom to operate opinions, participation in infringement litigations, involvement in licensing and other agreements Member of the European Qualifying Examination Committee II (Opposition Paper) and member of the European Board for the European Qualifying Examination (1986 – 1996), European Patent Office, Munich

New Partners in 2007: Dr. Jean-Jacques Sanglier

(Ph.D.) (*Head of Microbiology*)

Education

- 1964** Master in Biology, University of Brussels, Belgium,
1976 Ph.D. in Applied Biology, University of Clermont-Ferrand, France,
1986 Sabbatical at the University of Newcastle upon Tyne

Professional experience

- 1966 – 2000** Scientist, Senior Scientist and Group Leader in applied microbiology at Sandoz Pharma, Novartis Pharma, Basel, Switzerland,.
1985 – 2002 Lecturer, Associated Professor at the School of Biotechnology, University Louis Pasteur, Strasbourg, France,.
2001 – 2006 Permanent consultant at Cetek , MA, USA
2005 – Consultant at Biotec, Thailand
2007 – RBNP, University of Saigon, Vietnam

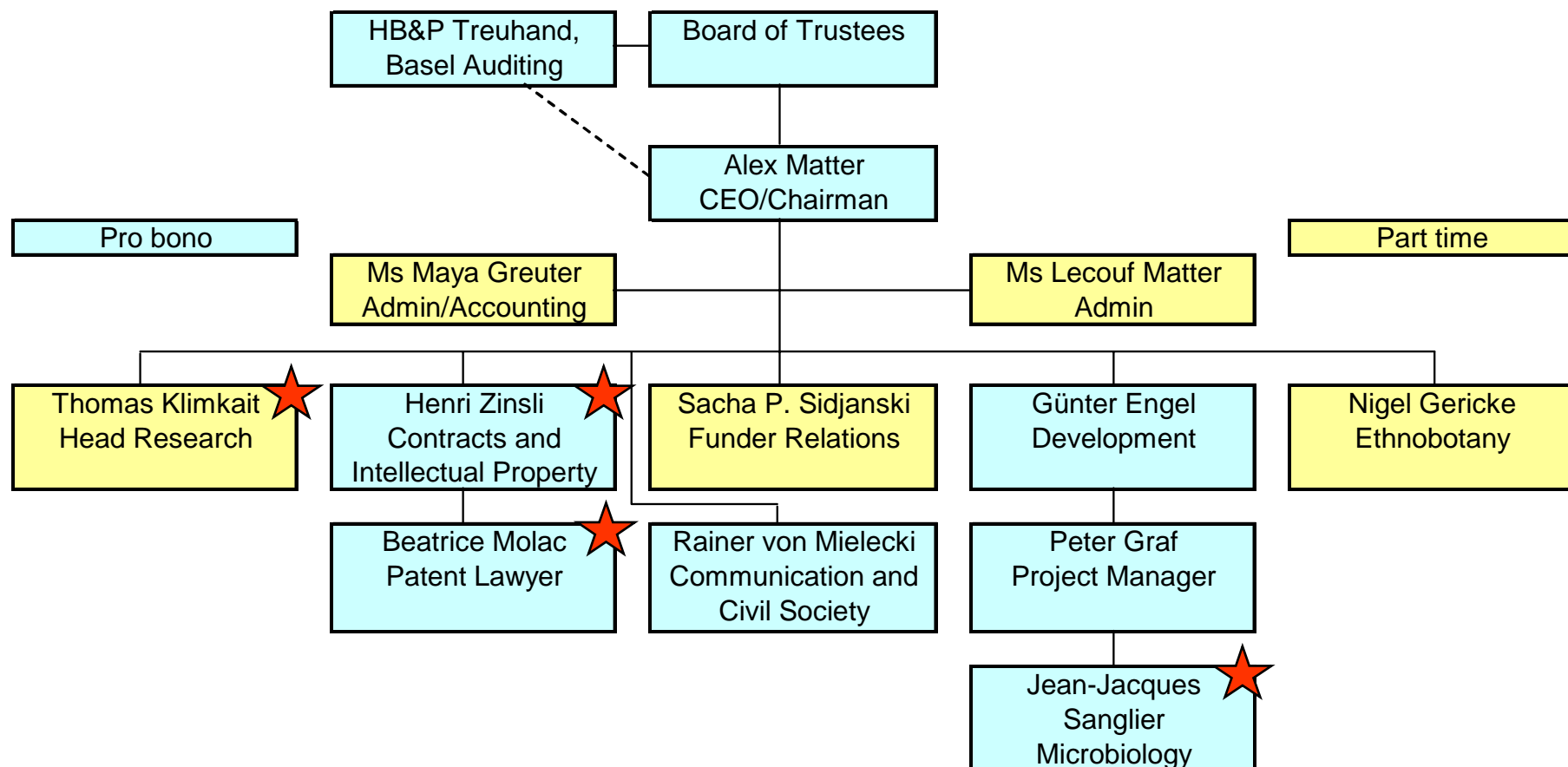
- Development of fermentative production of ergot alkaloids, cyclosporine, ascomycine, rapamycine.
- Discovery of natural compounds, e.g. sanglifehrins
- Development of isolation methods for novel strains of Actinomycetes
- Expert in physiology of secondary metabolites, optimization and experimental designs.

Organization Chart November 2007

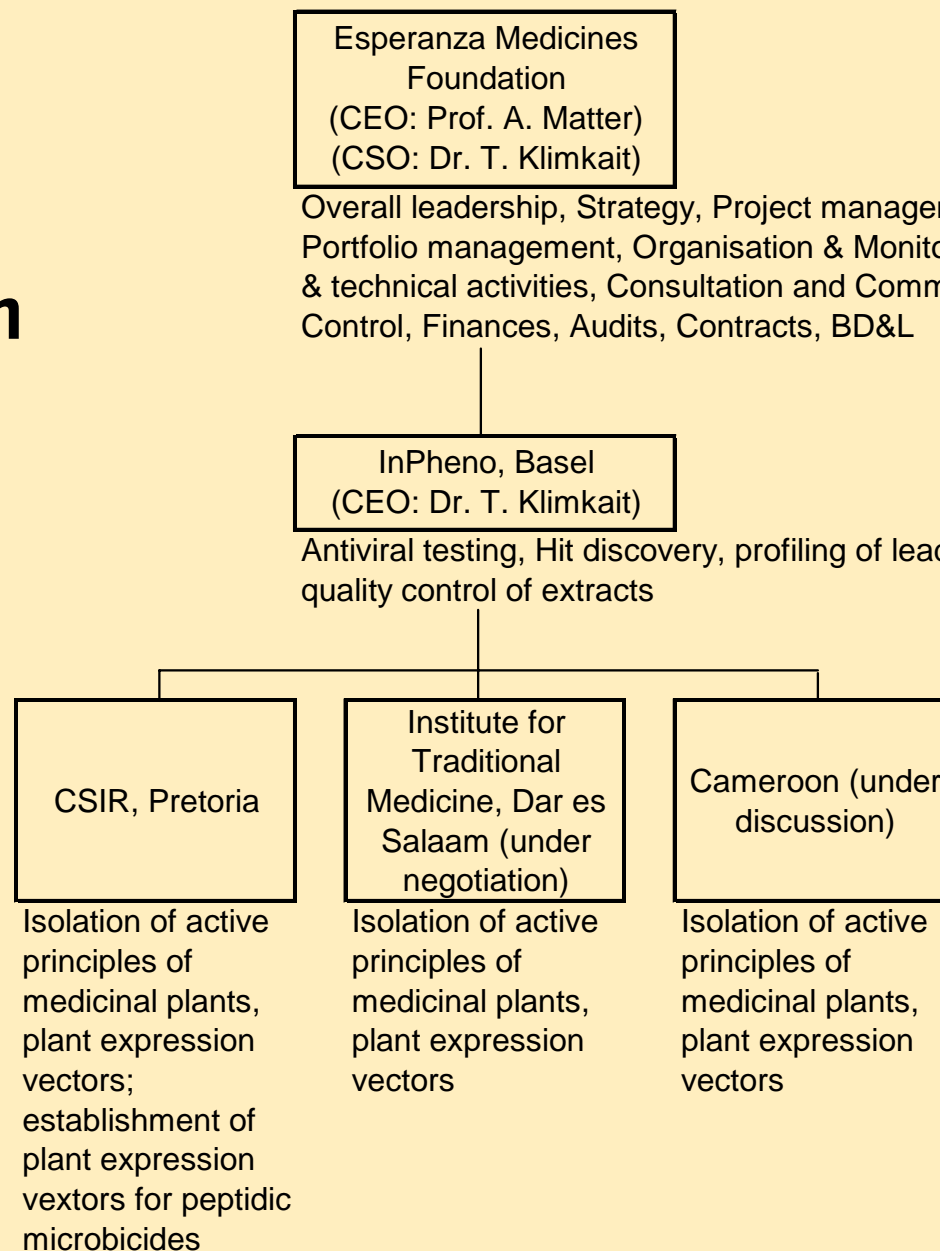


A much more robust organization is now in place

Esperanza Medicines Foundation: Organization Chart Oct 2007



EMF: Functional Organisation



Conclusions

- **Esperanza has made substantial progress with a minimum of infrastructure and administration**
- **Three projects in Switzerland successfully concluded**
- **A more robust and functional organization is now in place**
- **New collaborations must be developed in Africa: South Africa, Tanzania, Cameroon**
- **We are starting new research into traditional medicines but also have started technology development and early preclinical development**