



The Discovery Network

– an Inspire2Live | UnderstandingLife program –

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The crucial question that must be answered is 'How can we get cancer under control faster?' A key aspect of this goal is that we will have to be more efficient in translating new basic insights into more effective therapeutic regimen.

From: Understanding Life: Program plan

Introduction

From a single patient & friend initiative the greatest Dutch private cancer fundraiser grew: Alpe d'HuZes. After six years it now has contributed over 40 Million euros to the cancer research and treatment field and is still growing: internationally, more bikers, other sports and initiatives and – doing so – collecting even more funds.

The people that started this enormous endeavour and success shifted their attention to the source of the disease and want to get it under control. The Discovery Network is the initiative that really drives new research and developments forward to the patient arena, conquering all obstacles that are classically in the way of international, multi-institute cancer treatment R&D.

If you want to know where we come from and how we are moving forward, read this contribution.

Worldwide Cancer

So: where do we stand on cancer treatment R&D and how do we solve this disease? This is basically the question that started it all. Peter Kapitein – patient advocate, Coen van Veenendaal – CEO and Jan-Gerrit Schuurman – CSO – started a quest under the title UnderstandingLife. A somewhat strong title, but when cancer is involved, not far besides the truth.



So they organized meetings all over the cancer world having three major questions on their itinerary:

- What is the next step? How to proceed with cancer research?
- How to improve cancer research? How do we look at efficiency and effectiveness?
- How will you know you did well? This is where the patient comes in ...

September 2009 Peter, Jan Gerrit and Coen first visited the United States of America. At that moment the health bill, which is the first attempt for a fair healthcare system at a national scale, did not yet get through Congress. In this huge country that sometimes seems to have lost its sense of direction, they look for wisdom. They visit The Princeton Institute for Advanced Studies, the Rockefeller University and The Cold Spring Harbor Laboratory.

From this starting point they had the great privilege to speak to the most influential people in the cancer world. The BLOGs from all these meeting – more than 50 – can be found [here](#). To give you an idea of the people supporting our initiative – a few of the people we spoke to:

- James Watson, the discoverer of the DNA human genome.
- Freeman Dyson, A British born American Physicist and Mathematician. Famous for his work in Quantum field theory, solid-state physics and nuclear engineering.
- Arnold Levine is professor at Princeton, NJ. Mr Levine is famous for the discovery of the protein P53 and was the former director of the laboratory of Rockefeller University.
- Harold Varmus is an American Nobel Prize winning scientist. He won the Nobel Prize for his discovery of the cellular origin of retroviral oncology.
- Paul Nurse is a British Nobel Prize winning biochemist. He won the Nobel Prize for his discovery regarding cell cycle regulation by cyclin and cyclin dependent kynases.
- James D. Watson. The Noble Prize winning American Molecular Biologist. Watson has won the Nobel Prize for his discovery of the DNA structure, 'The Double Helix' in 1953. He was 25 years old at the time!
- Nikolas Rose is the James Martin White professor of sociology at the London School of Economics and acting director of LSE's BIOS Centre for the Study of Bioscience, Biomedicine, Biotechnology and Society. He was originally trained as a biologist.
- Daniel Louvard (Head of the Research Department of the Curie Institute), Sergio Roman-Roman (Head of the Translational Department), Francois Doz (Pediatric Oncologist), Jean Nicolas Munck (Head of the Hospital) and Olivier Aycard (Pedestrian Geneticist) of the Marie Curie Centre in Paris.
- Charles Swayers – co-developer of Gleevec

And many, many people more who should not have been left out.

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From these meetings we gained a set of working principles to move ahead. Weaknesses, successes, obstacles, innovations, bureaucracy, energy, failures all went into the energy creation engine and resulted in a strong and long list of constructive and positive principles for our future steps and developments.

The first next step was to – for the first time ever – to get all these brains working together in one room.

The January conference

So in January 2011 we brought together eighty top scientists and clinicians from all over the world in Amsterdam. An initiative by Inspire2Live, the Royal Dutch Academy of Science (KNAW) and the Dutch Central Bank. During the conference we discussed the central question on how to break the impasse cancer treatment R&D has run into. To put enough awareness, urgency and stress on this discussion we put a deadline in 10 years on this.

To give an idea of the people present a short overview on key-note speakers and people present:

- José Baselga – Massachusetts General Hospital Cancer Center – Harvard – Boston
- Rene Bernard – Netherlands Cancer Institute – Amsterdam
- Carlos Caldes – Cancer Research UK Cambridge Research Institute – Cambridge
- Hans Clevers – Hubrecht Institute – Utrecht
- Lex Eggermont – Gustav Roussy – Paris
- Ulrik Ingberg – Cancer Center Karolinska – Stockholm
- Robert Dijkgraaf – Royal Dutch Academy of Science – Amsterdam
- Stephen Friend – Sage Bionetworks – Seattle
- Gordon McVie – European Institute of Oncology – Milan
- Andrew J.G. Simpson – Ludwig Institute for Cancer Research
- Martine Picard – Institut Jules Bordet – Brussels
- René Wiestler – Deutsches Krebsforschungszentrum
- Robert Weinberg – Whitehead Institute for Biomedical Research – MIT – Boston

The conference did – for once – not look at the local issues within institutions but focussed on the broad perspective of closing all the gaps and solving all barriers within the Cancer R&D chain. The most recent and innovative techniques and resources were shared freely. Doing so the participants came up with the amazing conclusion that it sounds as a bold plan – this 10 year – but – with a lot of enthusiasm and belief – it might be doable!

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José Baselga & Stephen Friend move ahead

A lot of praise goes to José Baselga and Stephen Friend who assisted us in providing the next step: what if we could come up with a patient driven, cross institute, multi national working team that really decide to move forward? What would happen if you put together a small team of absolute top clinicians and scientist that think in terms of possibilities and have themselves experienced directly that great leaps forward do not stem from inhibitions and thinking within boxes and current practices?

What you get is what we call our Discovery Team.

Formation of the Discovery Team

The Discovery Team is an assembly of the best scientist, researchers, developers and clinicians that together overlook the entire R&D cancer treatment chain. Together with José Baselga we decide to invite:

- Hans Clevers – Hubrecht Instituut – for his work on stem cells
- Stephen Friend – Sage Bionetworks – for his work on collaboration
- Bob Löwenberg – Erasmus University – for his work on patient trials
- Matthew Meyerson – Broad Institute MIT – for his work on disease modelling and deep sequencing
- Mike Stratton – Wellcome Trust Sanger Institute – for his work on cell lines and animal testing
- David Tuveson – Cancer Research UK Cambridge Research Institute – for his work on pancreatic cancer

We decide to gather this team in Christ College in Cambridge and establish the Discovery Network on the home grounds of Charles Darwin and his initial thoughts on evolution.

Lex Eggermont as a moderator

In such a brilliant team we need a moderator that can focus and contain these geniuses. Lex joins in and – with him – his Gustav Roussy Cancer Centre in Paris and his surgical views on matters.

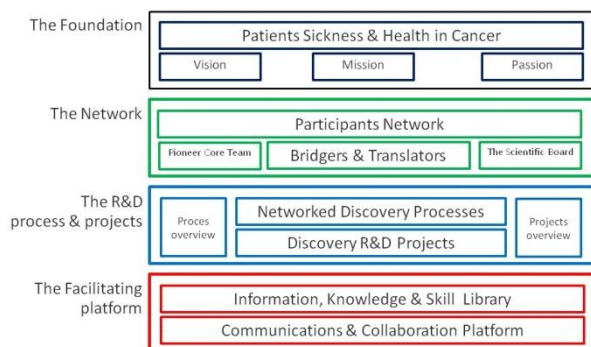
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Constituting the Discovery Network in Cambridge

In October 2011 the Discovery team meets in Cambridge. On all fields – basic research, cell line and mouse testing, clinical trials and patient projects – we share an overview on developments the field. We again see what happens when you join brains and forces on people who have overcome their career aspirations: free sharing of ideas and possibilities where other behaviour would be culture and practice.

The Discovery Network is a number of things on a number of levels:

- The foundation organization working from a patients orientation and passion, with a compelling mission and a clearly built vision.
- A participation and translation team stimulating projects in the participants network.
- A managed cancer R&D process and projects portfolio.
- An information, knowledge and skill library build upon a communications & collaboration platform.

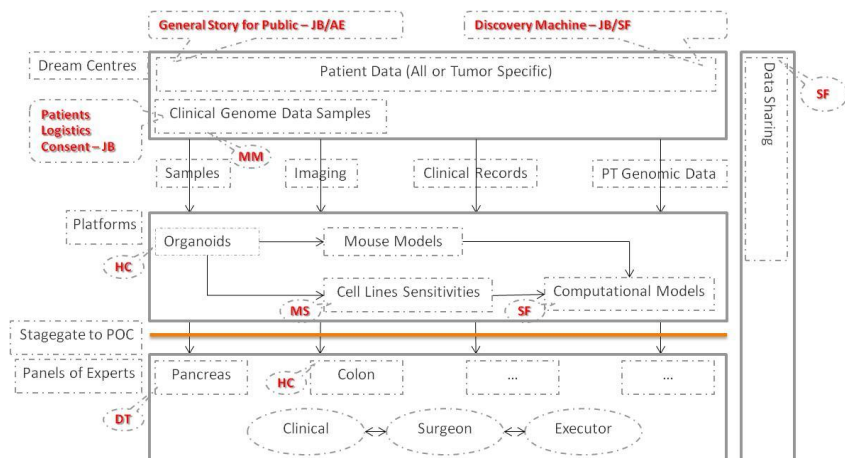


Drafting the Discovery Engine

During the October conference we spoke off the overall discovery process we would need and the projects that would come from that.

We designed the process that is constructed from combining effort and competences from several institutes:

- From patients we collect the data on their disease, from sampling, imaging, genomics and clinical perspective.
- We move this data forward and grow stable organoids from them.



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- Get the genome data from these organoids and treat them with many known drug therapies. From results we can deduce the effect of well known and – for the specific disease at hand - a-typical drugs.
- This mass data can be forwarded into computing models, to determine causal relationships that would else remain hidden from human eyes. We expect to come up with new combinations of drug cocktails and diseases these drugs would normally not be associated with.
- This data will be shared freely in the community, hopefully giving rise to a vast number of new hypotheses, investigations, tests and trials. Doing so we hopefully feed an open source crowd sourcing community of new scientists. We hope to harvest a multitude of new treatments for patients.

Current Discovery Projects

We are in the start-up phase of a number of projects:

- We are building the Discovery Network and it's organization
- We are testing and constructing the Discovery Engine process and facilities needed
- We are moving Pancreas into this arena and want to move forward towards pre-tested clinical trials.
- We are studying on Colon cancer to bring forward with this new discovery process and its engine.

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