

Is the grass greener on the other side.....? Academia to Industry

Stephen B. Helliwell

Senior Investigator, Novartis Institutes for BioMedical Research

Is the grass greener?

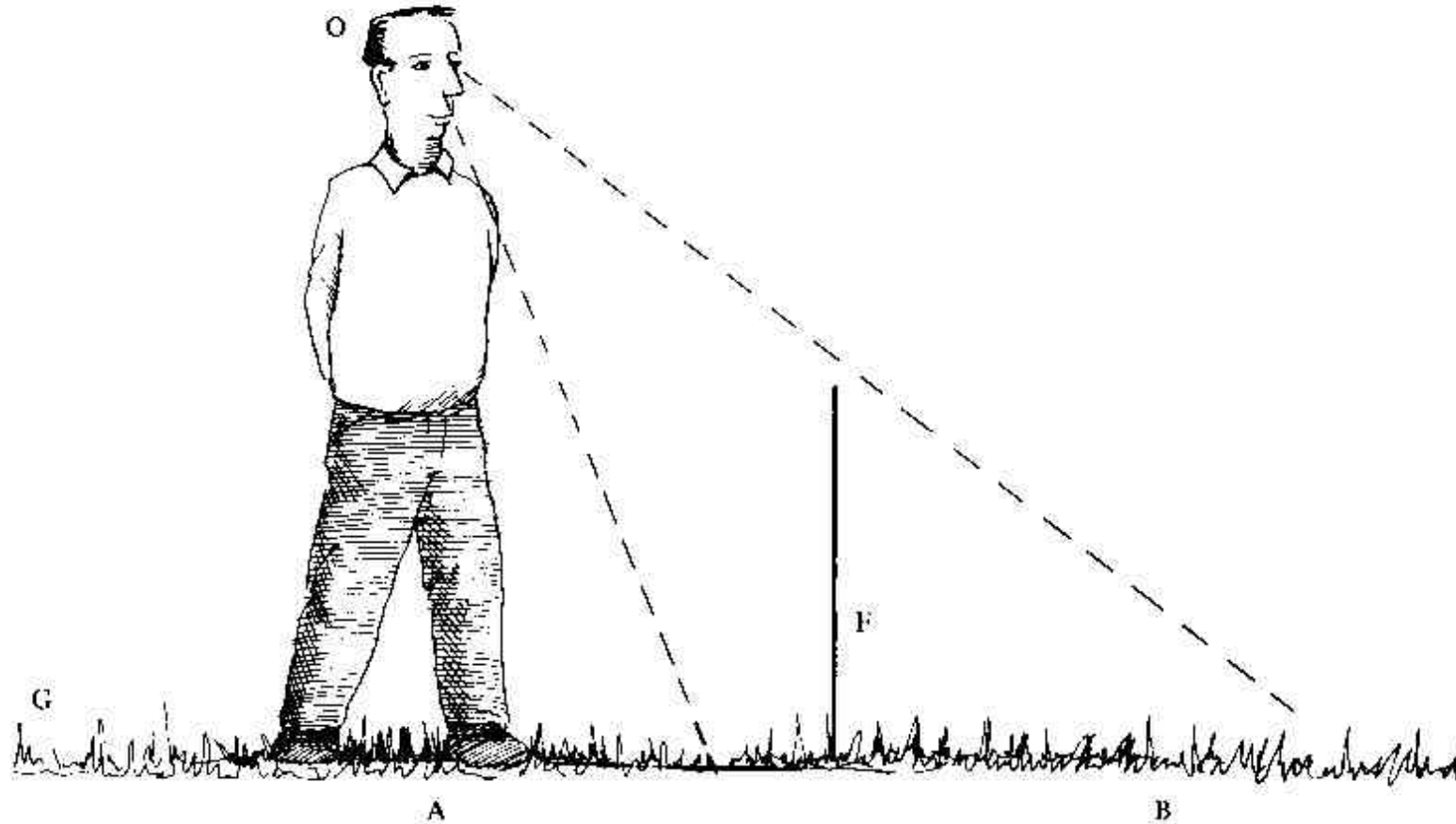
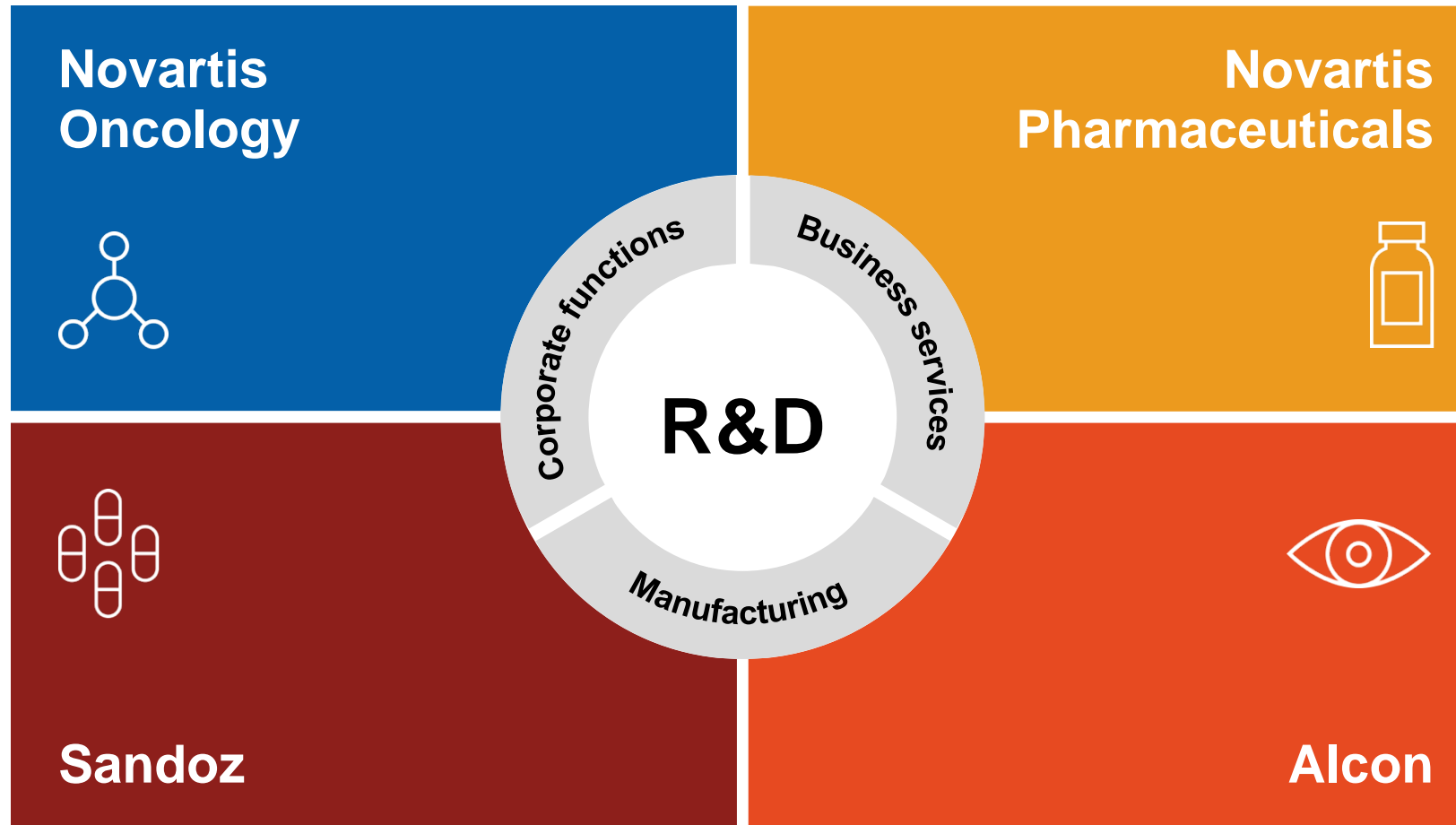


Figure 1. The optical layout for describing the green-shift phenomenon. The observer (O) stands on the grass-covered ground (G) and views the field directly below his feet (A) and the field (B) on the other side of the fence (F). The observer's line of sight is more likely to reach through the grass to the ground on side A than on side B.

Research and Development are the Core Drivers of Novartis



Novartis Institutes for BioMedical Research (NIBR)

Drug discovery and early development

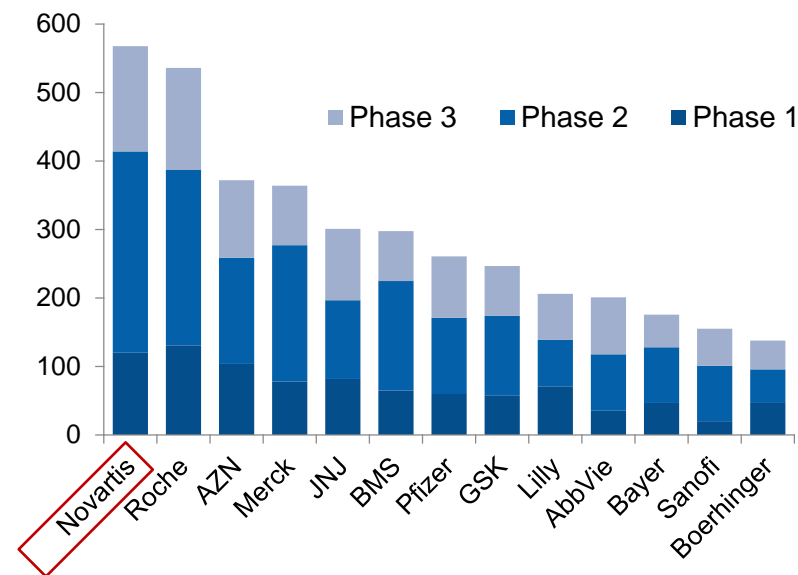
~6,000

Scientists /
6 sites globally



>500

Ongoing
clinical trials



Source: ClinicalTrials.gov as of December, 2016

~400

Research projects

~90

New Molecular Entities

My "Career"

88-92 **BSc** (Hons) Uni of Kent, UK – including "sandwich year" at Ciba-Geigy, Basel, Switzerland (now Novartis ...!)

92-96 **PhD** Biozentrum, Uni of Basel, Switzerland.

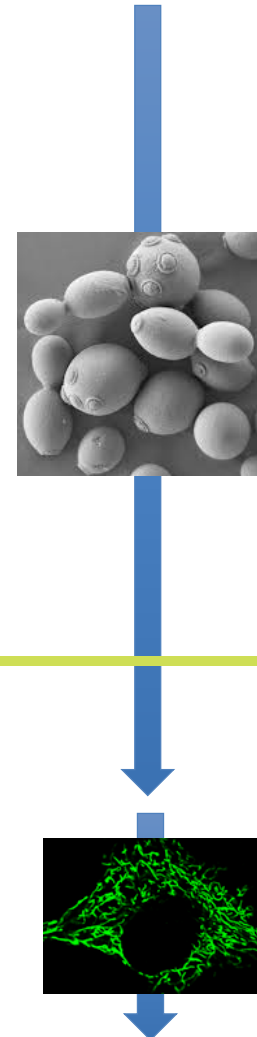
97-98 Post-Doc, Uni of Bern, Switzerland.

98-01 Post-Doc, MIT, Cambridge MA, USA.

02-05 Junior Group Leader, Biozentrum, Uni of Basel

05-10 Research Investigator, Novartis Institutes for BioMedical Research (NIBR), Basel. Yeast chemogenomic profiling – HIP HOP

11-present Senior Investigator, NIBR, Basel. Mitochondrial disease, Liver disease.



How did I get to my current position?

88-92 **BSc** (Hons) Uni of Kent, UK – including “sandwich year” at Ciba-Geigy, Basel, Switzerland (now Novartis ...!)

92-96 **PhD** Biozentrum, Uni of Basel, Switzerland.

97-98 Post-Doc, Uni of Bern, Switzerland.

98-01 Post-Doc, MIT, Cambridge MA, USA.

02-05 Junior Group Leader, Biozentrum, Uni of Basel

05-10 Research Investigator, Novartis Institutes for BioMedical Research (NIBR), Basel. Yeast chemogenomic profiling – HIP HOP

11-present Senior Investigator, NIBR, Basel. Mitochondrial disease, Liver disease.

Applied + luck

Applied – ended up in different lab

Asked collaborating Prof. if I could come to Bern he said yes – mutual science interest.

Wrote 3 PI’s – told them I was coming to visit anyway (USA), – 3 offers, chose MIT.

Via network – returned to old dept. Had generated other options at this time.

Via PhD network – right skills, right place, right time - Luck

By default, projects close, departments re-arrange (Luck)

“engineered serendipity”
engineering = published papers, network

What does my job look like today ?

“Lab head” (wet lab)

Supervise 1-4 associates (Apprentice, BSc, MSc)

Master’s students; Post Doc’s (central funds – competitive across NIBR)

Drive drug discovery projects (drive technology platforms)

Projects fall within loose framework - **up to you** to come up with novel ideas, approaches, targets etc

Perform enough exps at risk / in collaboration to **persuade senior management to start** a drug discovery program

But also (at same time !)

Learn to collaborate to get more things done

Maintain lab, follow all HSE, ethics guidelines

Project manage, be aware of budget

Publish (peer reviewed and patents)

Manage your associate’s careers

Manage your manager

Create and maintain your (internal / external) network

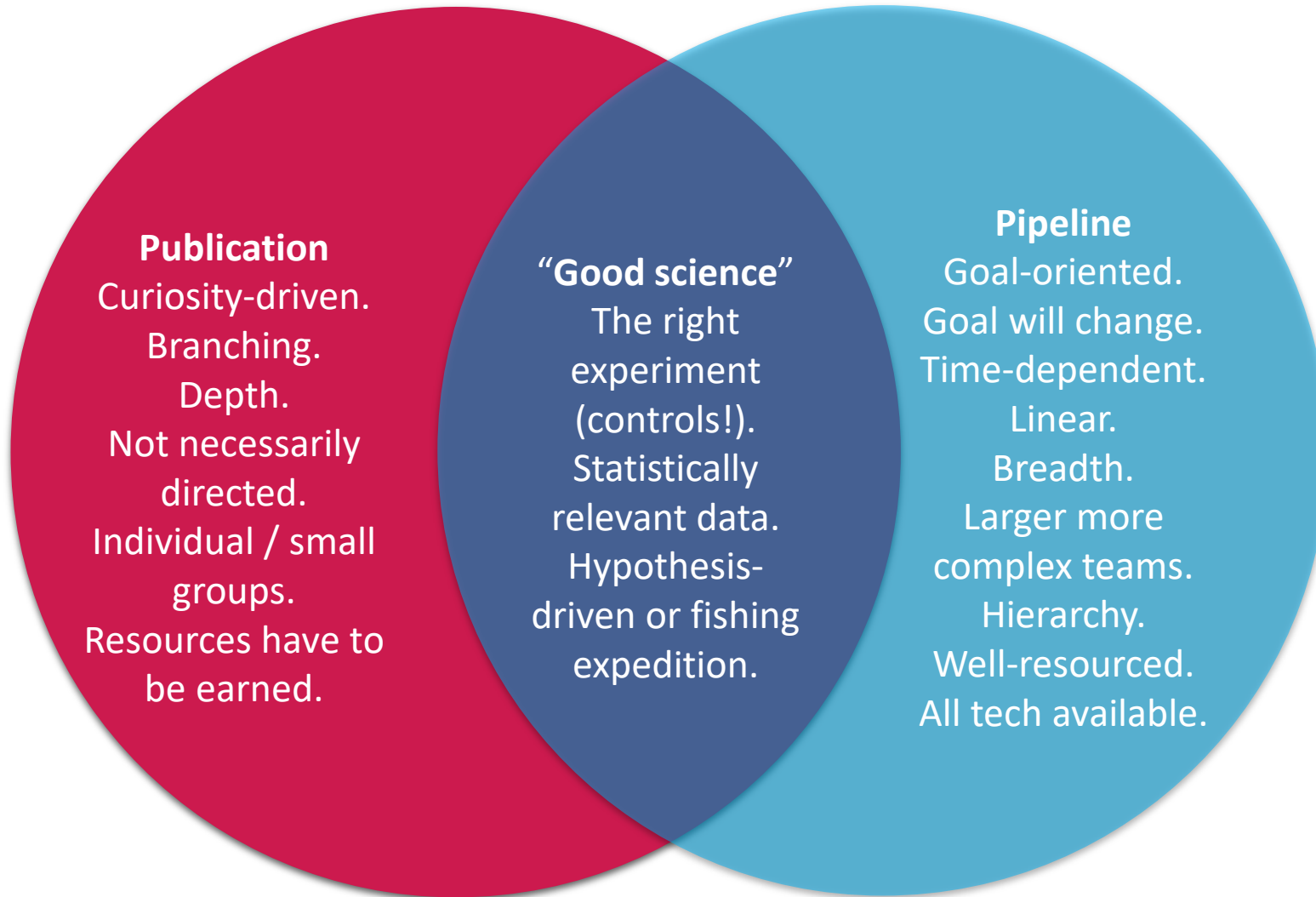
(perhaps) further training

(almost) never refuse an opportunity to talk about your science.

Science –

Academia

Industry



Many disciplines to make a registered drug

Biology

Assay development

Cellular biology

Computational biology

Electrophysiology

Genomics and molecular biology

Human Genetics

Medicine

Molecular Biology

Pharmacology

Physiology

Protein biochemistry,
expression, and synthesis

Protein engineering and

biopharmaceuticals

Proteomics

Structural biology and
crystallography

Veterinarian services

Chemistry

Analytical chemistry

Medicinal and synthetic
chemistry

Rational design

Computational chemistry

In silico and *de novo* design

High-throughput screening

Related Sciences

Engineering

Mathematics

Statistics

Bio- and chemi-informatics

IT, hardware, and software
design

Know yourself...

Qualifications

Needs

Desires

Personality

Alternatives

Timing

Think long term

Keep options open

Be analytic

Be honest with yourself

Questions ?

stephen.helliwell@novartis.com