



F-star: Building a successful Biotech Company

ICA Rectors and Deans Forum
Ghent, October 2012

Florian Rümer

Cofounder of F-star

University of Natural Resources and Life Sciences, Vienna (BOKU)

Department of Biotechnology

Christian Doppler Laboratory for Antibody Engineering

Vienna, Austria



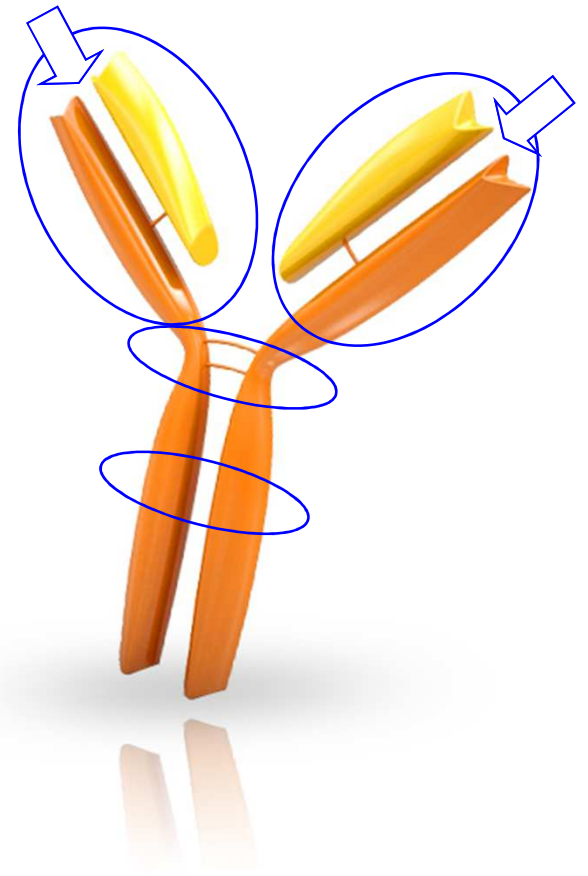
Technology Introduction



Monoclonal antibodies are the most successful biologics in the clinic today

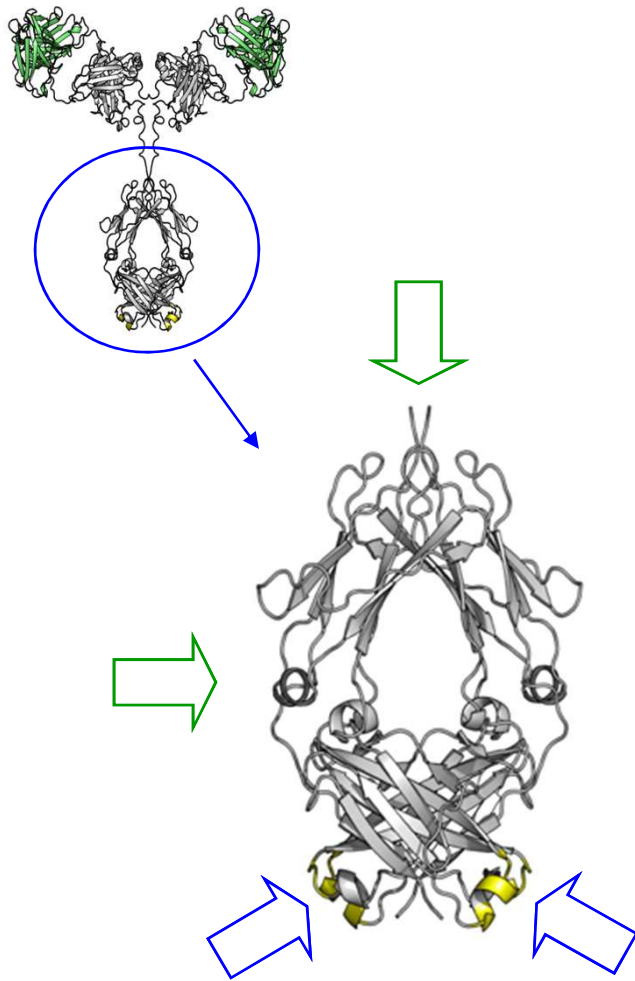
- Several blockbuster products on the market with annual sales exceeding \$1bn
- Binding to antigen via Fab arms
- Biological effects mediated via Fc receptors and complement system
- Long *in vivo* half life by specific receptor binding sites
- Antigen binding is monospecific and bivalent

Attention is now focussing on the next generation of antibody drugs





Fcab: Fc fragment with new antigen binding sites



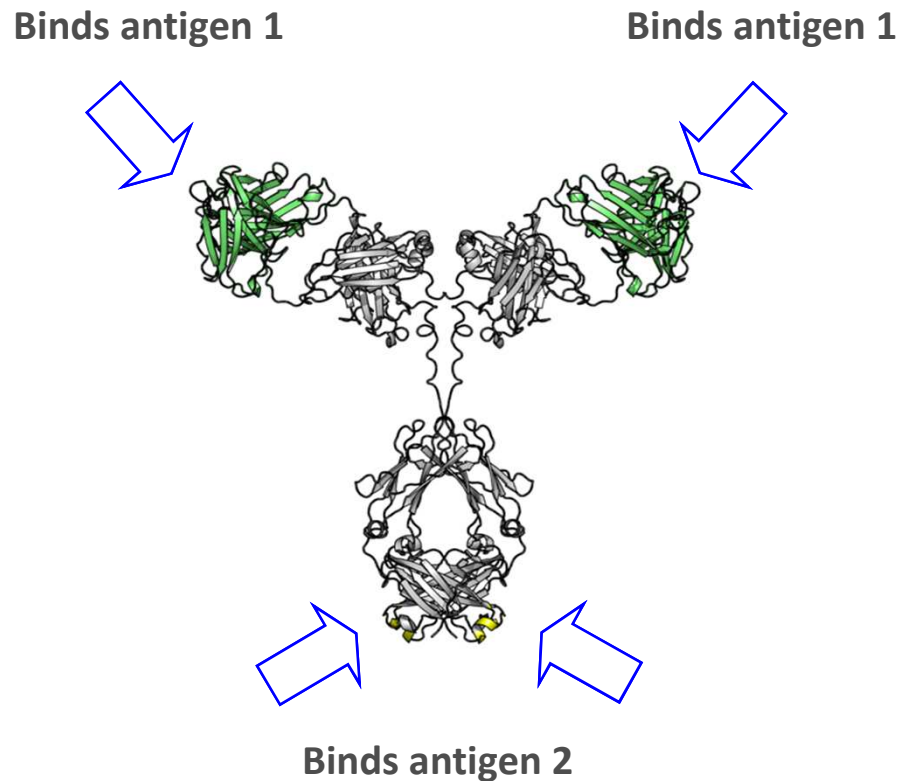
Fcab™ characteristics

- Fcab is the core element of the F-star technology
- Antigen binding sites in Fc region of the antibody
- Potency similar to a full-length normal antibody
- Comparable binding to Fc-receptors
- Mobilises immune effector functions
- Highly stable & long *in vivo* half-life
- Simple CMC
- Clear IP position

additional antigen binding sites

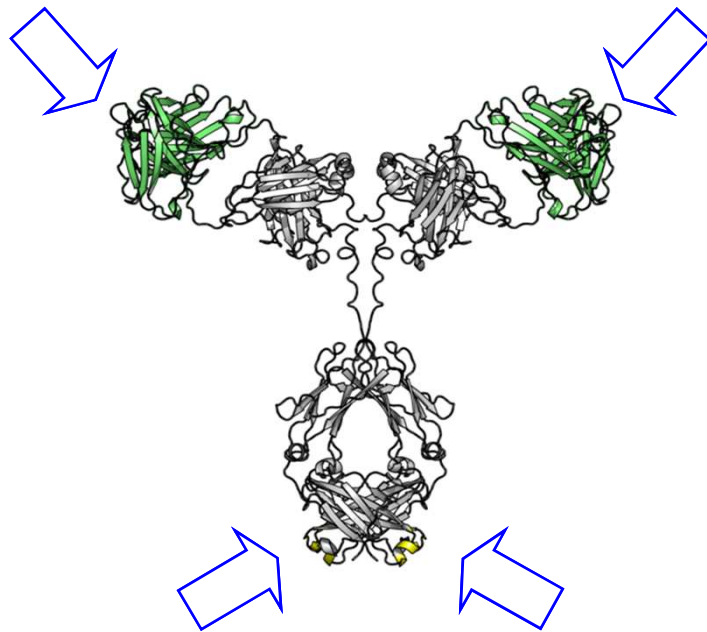


mAb²: Bispecific monoclonal antibody



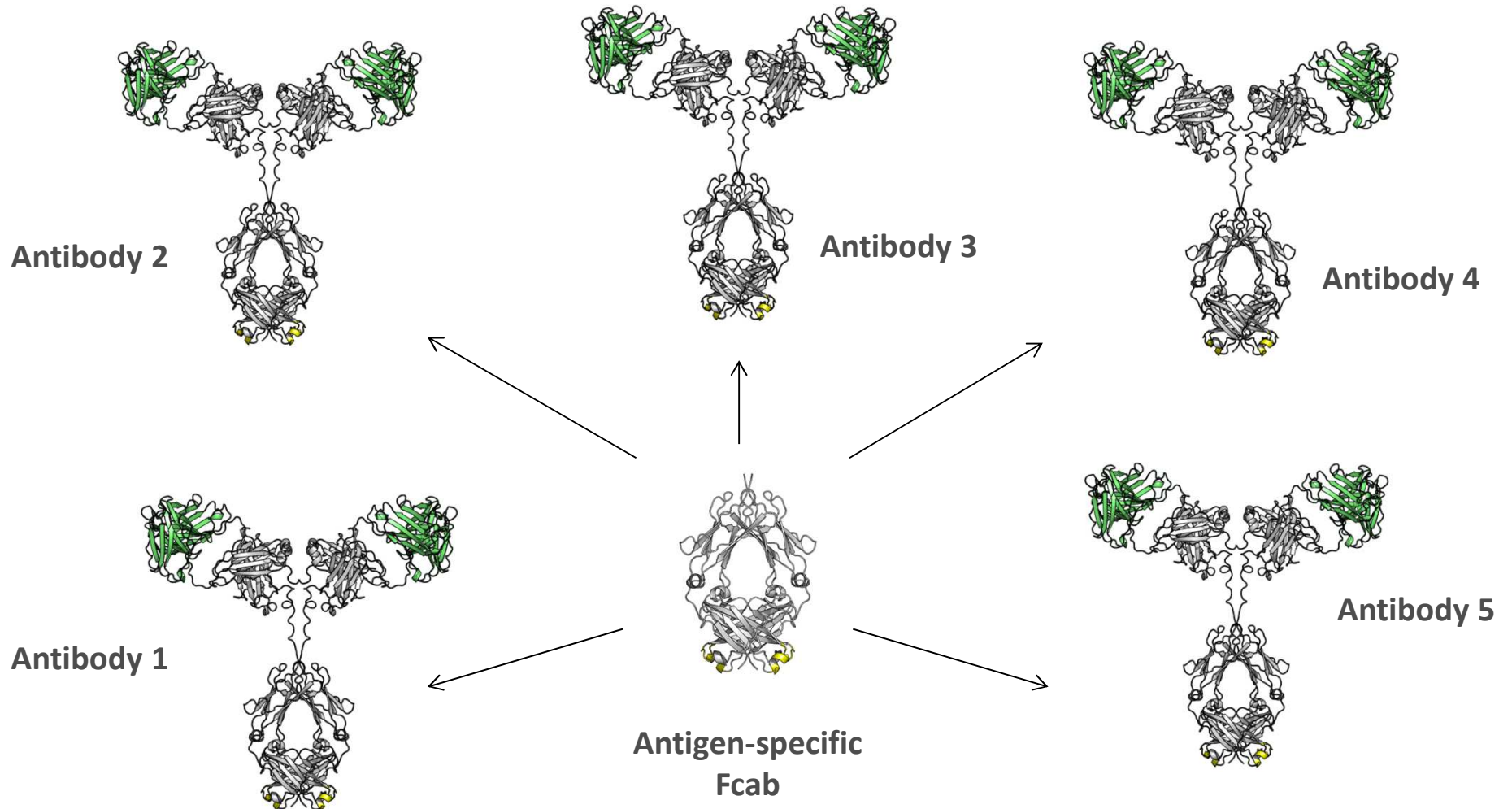
mAb² Key Leverage Points:

- Nominal change to mAb structure
- Standard (mAb) CMC profile
- PK and stability like traditional mAb
- Well-established regulatory path
- Clear IP position



- Tissue targeting
- Recruiting new effector functions
- Crosslinking cell surface receptors
- Crosslinking soluble ligand with cell surface receptors

Fcab Modularity: Speed in uncovering novel biology





Building F-star - major milestones



2004	First experiments towards creating antigen binding sites in CH3 domains (Gordana Wozniak-Knopp, Florian Rüker) at BOKU in the course of a project funded by New Century Pharmaceuticals Inc.
January 2005	US provisional patent application (with New Century Pharmaceuticals Inc.)
Since summer 2005	First discussions with biotech-experienced colleague Gottfried Himmler about the possibility of starting a company based on the novel technology Start of discussions with BOKU Rectorate about a possible Spinoff First successful grant applications at aws (Austria Wirtschaftsservice, Preseed Grant, k€ 100) Thorough and detailed development of a science-, financing, organisation- and IP-strategy
January 2006	PCT basic patent application
Feb/March 2006	Additional strategic patent applications
March 2006	Seed Financing Grant by aws (k€ 500)



Building F-star - major milestones



May 2006

Infrastructure and Collaboration Agreements signed by BOKU and subsequently by F-star

Infrastructure Agreement allows F-star to work in the BOKU labs for the first 1.5 years

Collaboration Agreement is the basis for continuous ongoing collaboration between F-star and BOKU

June 2006

Founding of F-star GmbH (Gordana Wozniak-Knopp, Gottfried Himmler, Geert Mudde, Florian Rüker, New Century Pharmaceuticals) based on its two technology platforms:

- Fcab™
- mAb2™

Florian Rüker appointed CSO for the start-up phase, however does not leave BOKU

December 2006

1.5 million € seed financing by Atlas Venture

December 2007

Scientific Advisory Board founded with antibody engineering pioneers Professor Sir Gregory Winter, Professor Sir Ravinder Maini and Professor Anthony Rees



Building F-star - major milestones



2007/2008

Move from BOKU to own lab facilities in Vienna, Austria

March 2008

Opening of research site in Cambridge, UK

Buyback of royalty obligations to New Century Pharmaceuticals by F-star investors

2009

Firm strengthening of the ongoing collaboration between F-star and BOKU by the start of the „Christian Doppler Laboratory for Antibody Engineering“

- Department of Chemistry and Department of Biotechnology
- 60 % funding from Christian Doppler Society, 40 % financial contribution from F-star
- 2 Postdocs, 3 PhD students over a funding period of up to 7 years
Christian Obinger and Florian Rüker as lab heads
- F-star founders Florian Rüker and Gordana Wozniak-Knopp members of the Christian Doppler Laboratory
- Collaboration agreement between F-star and BOKU secures all new IP for F-star, BOKU to receive royalty payments on future sales



Building F-star - major milestones



-
- | | |
|------|---|
| 2010 | Collaborative license agreement with Boehringer Ingelheim |
| 2011 | Collaborative license agreement with Merck Serono
F-star is selected as one of 2011's Fierce 15 companies, designating it as one of the most promising private biotechnology companies in the industry |
| 2012 | Internal focus shift from technology to pipeline development
All drug discovery and development operations in Cambridge, UK
IND filing on lead oncology program anticipated in 2014 |
-



Top Tier, Life-Science Focused Investors



MP Healthcare Venture Management, Inc.



- Raised €34M
- Funded to take lead program to IND



Product-focused Collaborations



- Seven-target collaboration (Nov 2010)
- Technology access fee
- Research funding
- License fees and development milestones up to €180M per target
- Tiered royalties



- Three-target collaboration (Sep 2011)
- Technology access fee
- Research funding
- License fees and development milestones up to €492M
- Tiered royalties



Experienced Biopharmaceutical Management Team



John Haurum: Chief Executive Officer
(Symphogen, ImClone/Eli Lilly)



Sharon Grimster: Vice President, Development
(Antisoma, Celltech)



Jane Dancer: Chief Operating Officer
(CAT/Medimmune, Cellzome)



John Edwards: Chairman of the Supervisory Board
(Adnexus/BMS, TKT, Genetics Institute/Wyeth, Genzyme)



F-star: A Leader in Bispecifics



Highly leveraged and commercially tractable bispecific platform

€34m raised through highly supportive investors

Two substantial validating partnerships

Highly experienced management

F-star initiating internal drug development programme

Strong collaboration with academic founders

