

Partnering at Roche

Avaleigh Milne



The Roche Group

A leading healthcare company dedicated to innovation in a sustainable way

1896

founded in Basel with a more than 125 year old history



63,3bn

sales in 2022 (CHF)



Genentech¹, first publicly-owned

Biotech



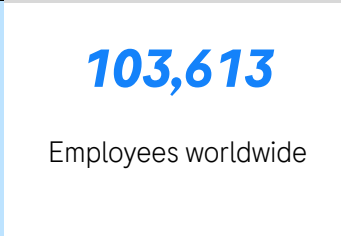
#1

R&D investor in healthcare



103,613

Employees worldwide



14,200,000

people treated worldwide with our medicines in 2022



> 30

medicines on World Health Organization List of Essential Medicines



2/3

of Roche voting shares held by founding family members → enabling long-term investments to deliver pioneering therapies for the next generations.



39

FDA Breakthrough Designations



Roche – From Switzerland to the world

Roche campus in Basel, our headquarters

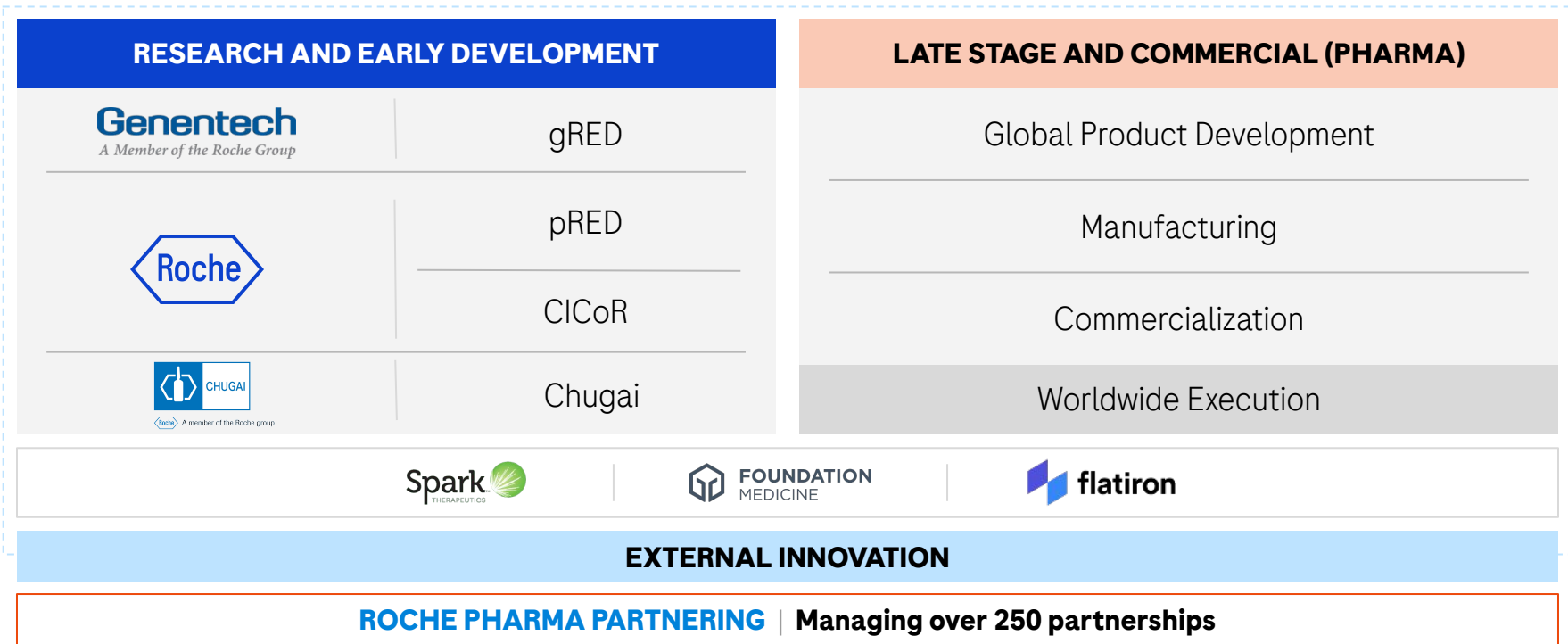


- Founded 1896 in Basel, Switzerland
- Global HQ in Basel, US HQ (Genentech) in San Francisco
- Founding families still hold majority stake
- Clear focus on unique innovation model
- World's largest biotech company
- Redefining treatment in oncology for over 50 years
- Leadership in diagnostics



Our unique innovation model

Providing scientific freedom to work, think and address problems in different ways



Global presence

Pharma Partnering offices



With around **120 people worldwide**, Pharma Partnering offers speed, flexibility and accessibility to partners.



Because a great idea is a great idea...

...no matter where it comes from

~ **50%**

of R&D pipeline *
involve a partnership



~ **60%**

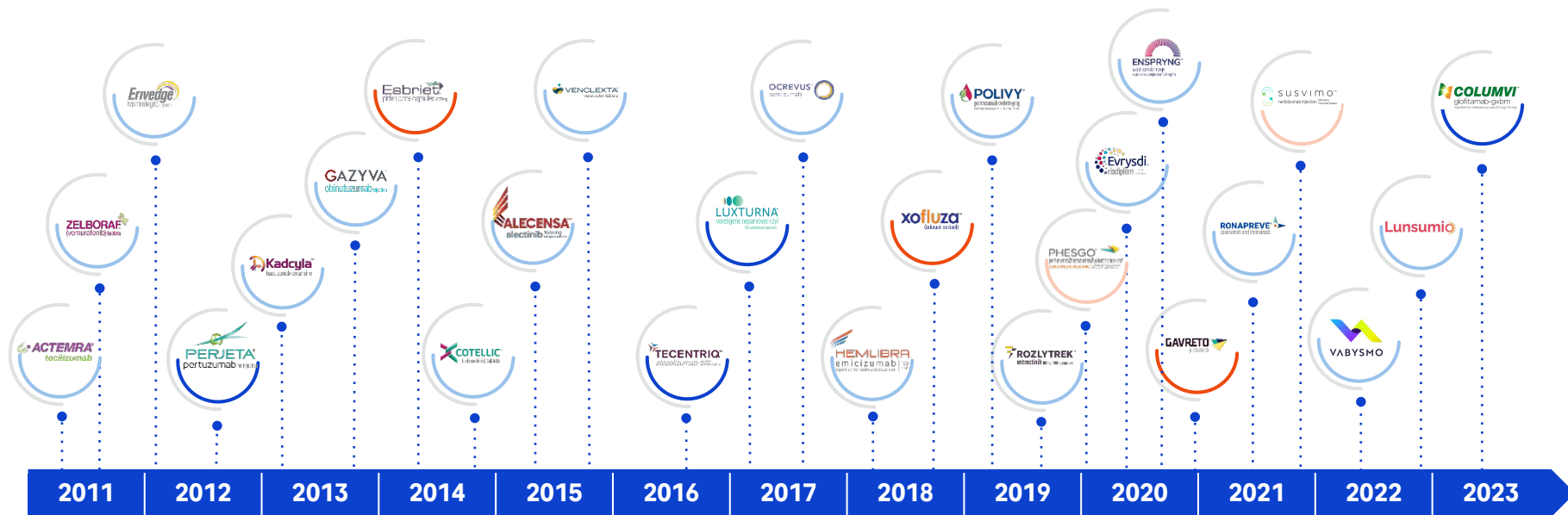
of total Pharma
sales generated
from partnered or
in-licensed products **



*products in clinical development **based on 2022 FY Pharma sales

The Roche Group has launched 26 new medicines since 2011

22 out of the 26 have a partnering angle



*Roche Group includes Roche, Genentech, Spark Therapeutics, Foundation Medicine & Flatiron. Medicines from Chugai are considered partnered medicines stemming from our strategic alliance.

Medicines discovered in-house

Medicines brought in ready to launch

Medicines brought in at pre-clinical/clinical stage

Partnered technology only

We value external innovation

Complementing our internal innovation and expertise

AGREEMENTS ENTERED IN:

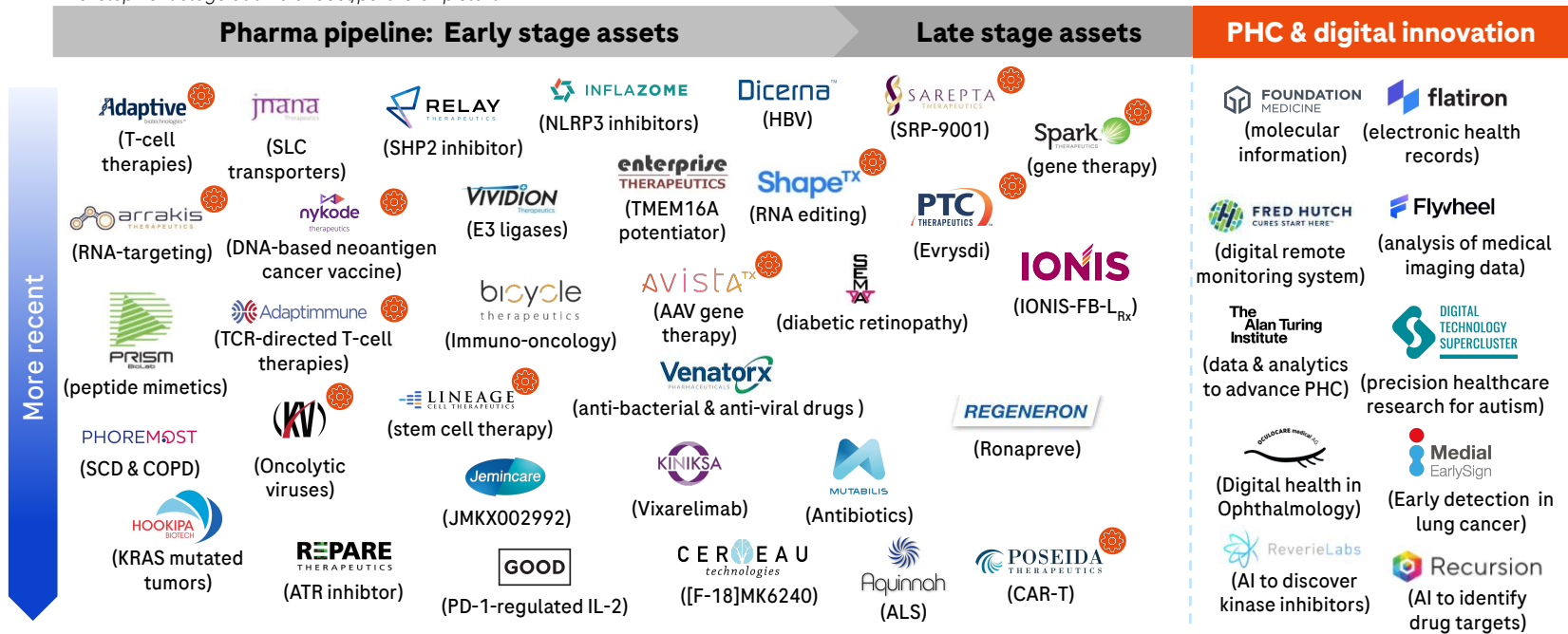
- Oncology
- Immunology
- Ophthalmology
- Gene therapy
- Neurology
- Technology platforms
- PHC
- Rare diseases



Recent deals and partnerships¹

Accelerating drug discovery and driving personalised healthcare

Development stage at time of deal/partnership start



¹ Non-exhaustive and illustrative overview of deals and partnerships signed over recent years; PHC=personalized health care; = Deal/partnership includes novel platform technologies (drug modalities);

Broader market recovering while life sciences lag behind

XBI lost 64% of value in largest contraction since inception

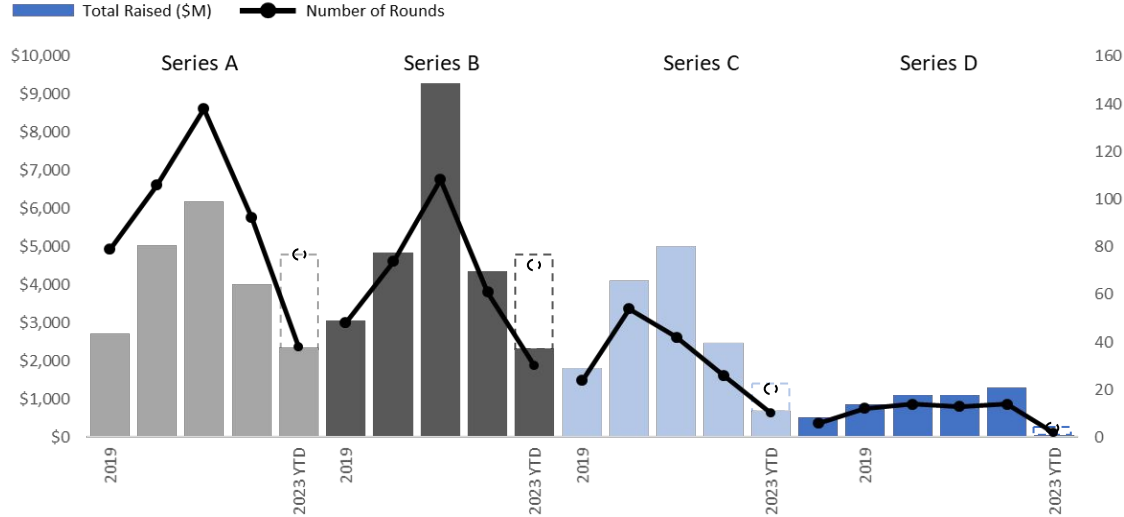
XBI Performance 2007 - July 2023



VC deployment settles back to pre-pandemic levels

Series A and B rounds, when annualized, top 2022 value and volume as C and D rounds drop off

Series A-D Deployment Over Time



Source: DealForma

Note: Annualized estimates shown with dashed shapes for easier comparison to FY data.

Our approach to partnering in the pharma industry

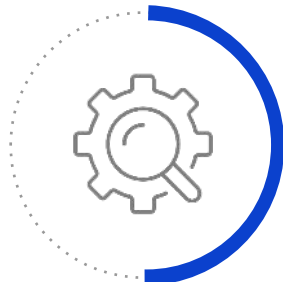
We value external innovation and bring our best experts to the table

OUR FOUR STEP PARTNERING PROCESS



Identify

the areas of interest



Search

for the latest
developments



Start

in-depth conversations



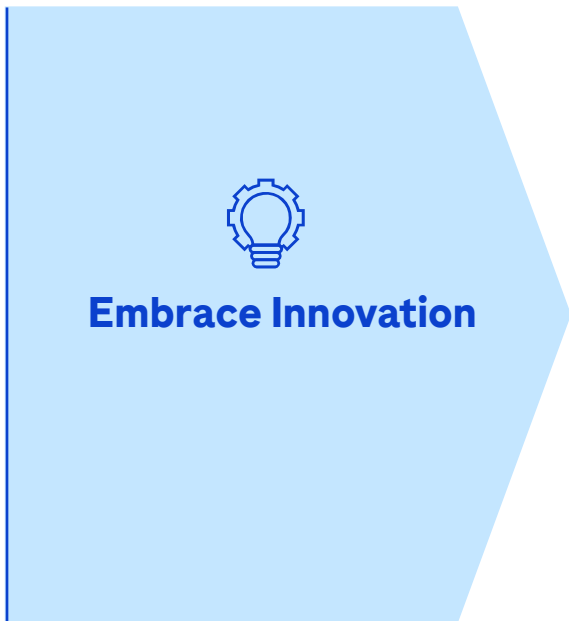
Ensure

enduring partnerships



Pharma Partnering focus

Pursuing high impact deals across all three strategic focus areas



1

Complement Pipeline
(Therapeutic Area strategy)



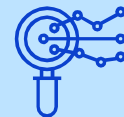
2

Augment Capabilities
(Integrated strategy)



3

Create Portfolio Optionality
(Outside strategy)






Identify our interests in each therapeutic area


We seek great science across multiple therapeutic areas

Neuroscience




- Neurodegeneration (e.g. AD, PD, HD)
- Neuroinflammation (e.g. MS)
- Neuromuscular diseases (ALS, DMD)
- Neurodevelopmental (e.g. ASD)
- Stroke

Immunology



- Gastroenterology
- Respiratory
- Rheumatology
- Nephrology
- Rare Blood Disorders


Oncology & Cancer



Immunotherapy


- Oncogenic drivers
- Synthetic lethality
- Adaptive and innate immunity
- Neoantigens
- Stromal biology
- Cell therapies

Cardiovascular & Metabolic




- Hypertension
- Obesity

Infectious Diseases




- Hepatitis B
- Multidrug-resistant, gram-negative
- bacterial infections

Ophthalmology



- Retinal diseases and long-acting ocular drug delivery solutions
- Glaucoma and dry eye disease

Research Technologies



- Novel modalities and enabling technologies to expand druggable target space
- Targeted, intracellular delivery
- Artificial intelligence for drug discovery
- Genomic Medicine platforms

Personalized Healthcare & Digital



- Enable infrastructure
- Expand portfolio (novel targets, line extensions, combinations, etc.)
- Improve PTS and cycle times
- Increase product potential

→ via access to RWD, advanced analytics, digital tools, data platforms



Search latest developments

Where and how do we search for external opportunities?

Business development forums, (e.g. JP Morgan, BIO conferences, etc.)

Scientific congresses

Venture Funds

Incubators

Word-of-mouth

Academic institutions

Unsolicited emails to pharma.partnering@roche.com

Personal referrals

Landscapes





Start conversations

How we get in touch and/or review incoming opportunities

Opportunity Review Process

- 1 Internal evaluation by Pharma Partnering
 - Is the opportunity in **scope**? (focus areas, approach, target)
 - Does the opportunity have robust **patent** cover?
 - Is there potential to be a **first in class** or **best in class**?

- 2 Assessment of information by our functional experts in our R&D units

- 3 Start of Due Diligence involving experts from all functions tailored to individual needs



Efficient and transparent process with clearly defined criteria for rapid decision making



Ensure enduring partnerships

How we make relationships last in the long-run



One single point of contact (dedicated Alliance Manager) already assigned during negotiations



Getting to know the person who you will deal with right from the start



Building a **close relationship** and connection for a long-term and **sustainable partnership**

Carefully selected partnerships

In 2022, around 3% of the reviewed opportunities resulted in a new partnership

1

We identify the areas of interest that fit our internal R&D portfolio and have the potential to transform healthcare.

2,500
opportunities
reviewed in 2022



62
agreements in 2022

2

We search precisely for the **latest developments in science** around the world to **identify the most promising products and technologies.**

Flexibility in deal structures

Tailored for mutual value and bringing the best capabilities to the table



Roche

Option Deal

Licensing

Collaboration

M&A

Partners

What we are looking for in a partnering opportunity

Innovative science with the potential to make a significant difference for patients

WHAT WE ARE FOCUSING ON

- High disease burden
- Novel targets
- Potential for first- or best-in class molecules
- Novel enabling modalities
- Data sets and advanced analytics
- Digital and mobile technologies

WHAT WE DON'T DO

- Generics, biosimilars
- OTCs
- Animal Health

WHAT WE ARE LOOKING FOR

- Clear biology
- Consistent data
- Solid IP
- Biomarker strategy

What makes us a unique partner?

We are building deep and long-lasting connections with our partners, leveraging our unique company structure and culture to translate pioneering science into breakthroughs for patients



Roche is uniquely positioned to lead the next generation of healthcare



Innovation is in our lifeblood and we are following the science in diverse ways



Collaboration is in our DNA and we embrace a distinctive approach to partnering

Our Pharma Partnering contacts

Get in touch with us!

Innovation Partnering

Pharma Partnering Contacts



At Roche and Genentech, we are leveraging our unique company structure and culture to build deep and long-lasting collaborations with our partners to translate pioneering science into breakthroughs for patients.

We strongly believe that the key elements to a successful and lasting partnership are trust, shared values and openness. To revolutionize today's standard of care, we are looking for best or first-in-class involvement in the following areas:

Digital and Personalised Healthcare (PHC)

We are taking PHC toward a future where treatments are targeted towards individual patient needs and unique profiles.

Partnering opportunities we are looking for:

- Robust data sets (e.g. to enable biomarker discovery and development, power AI/ML algorithms)
- Advanced analytics (artificial intelligence including machine learning and deep learning models)
- Digital and mobile technologies (e.g. to optimize treatment administration)

[Learn more](#)



Michael Scherer
Senior Evaluator Lead Digital & Personalized Healthcare, Pharma Partnering

Contact

Immunology

We are leading the way to advance science in inflammatory and autoimmune diseases.

Partnering opportunities we are looking for:

- Gastroenterology (IBD), Respiratory (COPD, Asthma, PF, LDD, CCL), Nephrology (SR, CKD, Transplant, autoimmune skin diseases), Psoriasis, ICD, T1D, Ocular disease
- Innate, Adaptive, Fibrosis, Tolerance and Tissue Regeneration targets



Jean-Eric Charabin
Senior Evaluator Lead Immunology & Infectious Diseases, Pharma Partnering



Contact us!

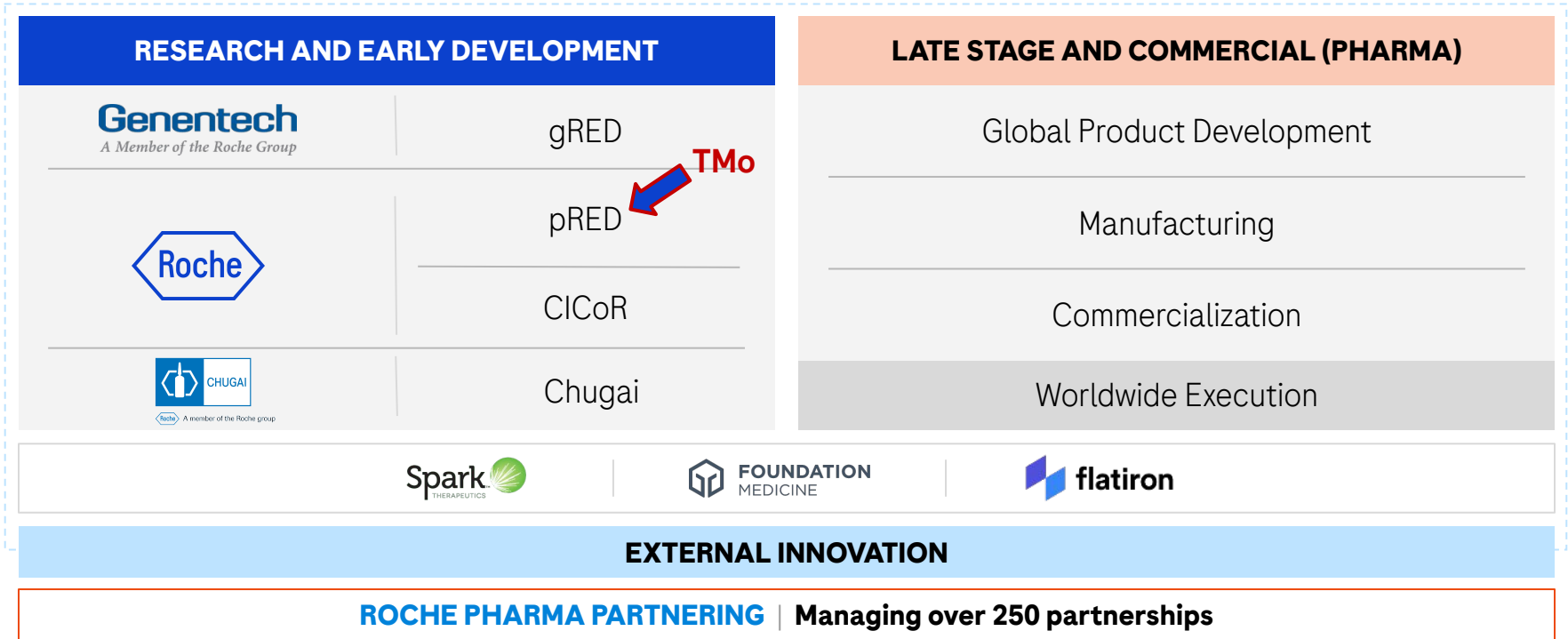
Innovation Deep Dive

Carsten Kroll



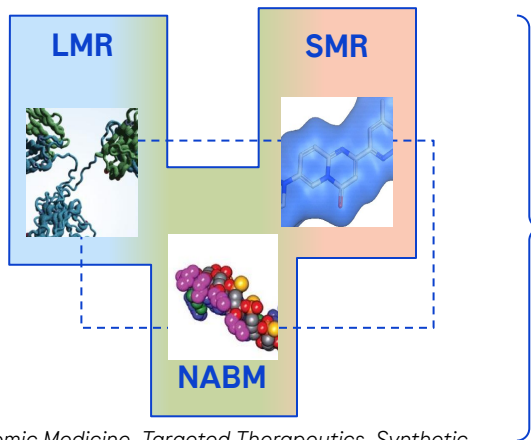
Our unique innovation model

Providing scientific freedom to work, think and address problems in different ways



TMo - The diverse global drug discovery function in pRED

Our modality mix enables diverse scientific approaches to deliver a rich portfolio of breakthrough medicines



Genomic Medicine, Targeted Therapeutics, Synthetic biology are focus areas centred within NABM but maintained as matrix across modalities

*Access to well **established and emerging** drug modalities is key to create transformative new medicines*

*Innovation through **unique skills & diverse ideas** across all therapeutic areas - embedded in pRED*

Nucleic Acid-Based Medicine (NABM)

Leading technologies for modulating gene expression at the sequence level

Large Molecules (LM)

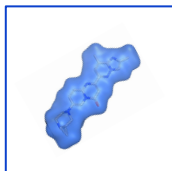
Discover, design, develop and deliver next-generation biologics with significantly enhanced properties

Small Molecules (SM)

Designing and constructing tomorrow's small molecule medicines with today's most modern methods

The job in Therapeutic Modalities: enable breakthroughs

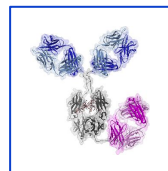
Delivering "Firsts" - pushing the boundaries of the druggable target space



Risdiplam (Evrydi)

First oral small molecule treatment for spinal muscular atrophy

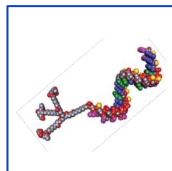
Approved



Trontinemab

First Brain Shuttle molecule in human trials for Alzheimer

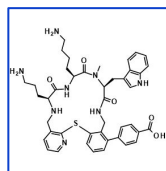
Phase 2



PD-L1 LNA

First LNA liver-targeted immuno-enhancer for HBV

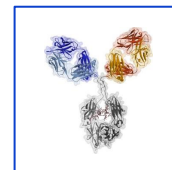
Phase 2



Zosurabalpin

First peptide macrocycle to treat life-threatening *Acinetobacter baumannii* infections through an unprecedented mode of action

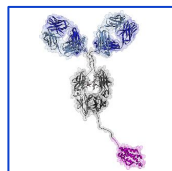
Phase 1



Faricimab (Vabysmo)

First bi-specific antibody for intraocular use

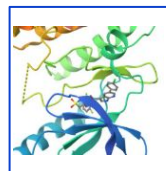
Approved



PD1-IL2v

First targeted 3rd gen IL2 antibody-cytokine fusion

Phase 1



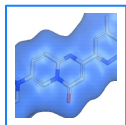
BRAFi - RG6344

First brain penetrant next generation inhibitor targeting BRAF V600E mut. tumors

Phase 1

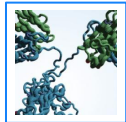
We have an ecosystem approach for innovation

Internal capabilities complemented with external emerging drug discovery platforms



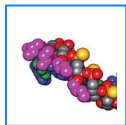
Small Molecules

Designing and constructing tomorrow's small molecule medicines with today's most modern methods



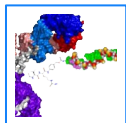
Large Molecules

Discovering and designing next-generation biologics with significantly enhanced properties



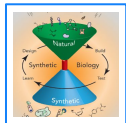
Nucleic Acid-Based Medicine (NABM)

Leading technologies for modulating gene expression at the sequence level



Targeted Therapeutics

Addressing the delivery challenge of our modalities to enable the composite medicine of the future



Synthetic Biology

Equipping cells with novel, controllable functions (gene & cell therapy), genome-scale engineering, SynBio tools

Enabling small molecule-RNA targeting



Expanding the small molecule target and chemical space



Extending the duration of action of bispecific antibodies in the eye (XTEN)



Chemoproteomics approach to difficult to drug targets across disease areas



Driving next-generation gene therapies for large indications



Development of Evrysdi is part of a collaboration



Expanding the transformation potential of NABMs



Degraders (PROTACs) focussed on new cancer treatments



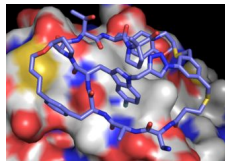
Large-scale phenotypic screening & data analytics



Next frontier from a modality perspective

What are we looking for; what are the key challenges?

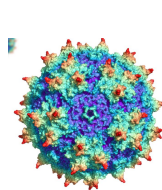
Small Molecules - Expand druggable Target Space



- Peptide
- Macrocycles
- Molecular Glues
- RNA Targeting
- ...

Merck, PCSK9 - Tucker et al., JMedChem 2021

Biodistribution of **oligonucleotides** and **gene therapy**



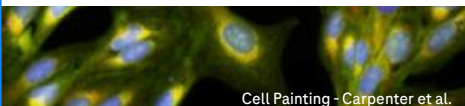
- Tissue-targeted delivery (LNPs, AAVs) beyond the liver
- Tissue-specific promoters
- Alternative routes of administration

Predict **Immunogenicity** of biologics

- Often a limiting factor for biologics incl. gene therapy
- Complex antibody-based molecules are the "new normal"
- Better predictions (e.g. AI/ML) for immunogenicity needed

Phenotypic **Target Discovery**

- Find the unprecedented, not designable:
 - ◆ Risdiplam
 - ◆ New Target of zosurabalpin



Cell Painting - Carpenter et al.

Utilize **AI/ML**

- Enhance efficiency
- Virtual molecules with predicted properties augment the traditional design-make-test cycle
- Structure prediction - SM target interactions, antibody engineering

Next Generation Biologics

Antibody engineering can open up new target spaces :

- Making Brain-disease accessible to large molecules (brain shuttle and beyond)
- Environmental activation

Exploration of new modalities to further enhance our toolkit

Incredible amount of possibilities and approaches, ever increasing

Synthetic Biology

Oncolytic Viruses, Engineered Bacteria,
Tissue-specific promoter, SM-inducible GT...



Phage Therapy

Cell Therapy

Autologous and allogeneic



Circular RNA

Targeted Delivery

Mixed-Modality Conjugates,
Nanoparticles...

- Objective assessment of **potential vs. risk**, before **conscious investment** in emerging platforms in line with disease area vision and patient need
- Initial access to emerging new technologies typically through **research collaborations**
- Preferred format for explorations - **feasibility studies (FSA)** with clearly defined goals and experiments
- Even if externalized, sufficient **internal specialized skills required**. Strong alignment and well-designed learning cycles across all functions

Predictive Validity

Key for internal research and for the assessment of external innovation

➤ *The right decision tools at the right time to increase predictive validity and achieve clinical utility*



- The Disease - Target - Drug interplay is often insufficiently addressed in **drug discovery** - it's mostly **'reductionist'**
- **Convergence of innovation** in computational techniques (AI/ML), Omics, Human Model Systems etc. **enables new drug discovery paradigms**
- Better translatability by **using predictive validity** throughout the project journey (end-2-end thinking)

Examples

Organoids, microfluidics ("organ-on-a-chip") to model complex biological systems

Large-scale image-based screens and data analytics in **disease-relevant cells** for neuroscience



AI/ML and digitalization

We have top-notch scientists alongside some of the largest datasets and data generation capabilities, which we use to train and optimize ML algorithms to gain new insights for target and drug discovery

Virtual compounds, predicted properties

Focus on the most promising molecules, less assay submissions

Generative models for sequence optimisation of antibodies

From “discovery” to “design”, i.e. to an AI-based generation of something novel

Protein & antibody structure prediction

Near-experimental accuracy is often reached

ML/AI and physics-based methods (FEP)

Augmentation of traditional SM structure-based drug design

DELT-AI

technology combined with AI, to identify and prioritize hits and expand chemical space for small molecule discovery

AI/ML Image Analysis

new possibilities in phenotypic drug discovery

- These solutions **augment us every day**, but are far away from “computer designing a market-ready drug”
- High bar for novel solutions, objective validation and **benchmarking required**
- Critical to **consider integration** into existing IT environment

Start conversations

How we get in touch and review incoming opportunities

Opportunity review process:

1. Internal evaluation by Pharma Partnering

- Is the opportunity in scope? (focus areas, approach, target)
- Does the opportunity have robust patent cover?
- Is there potential to be a first in class or best in class?

2. Assessment of opportunity by functional experts in our R&D units (focus on science and portfolio fit)



3. Start of Due Diligence involving experts from all functions tailored to individual opportunity - gated process

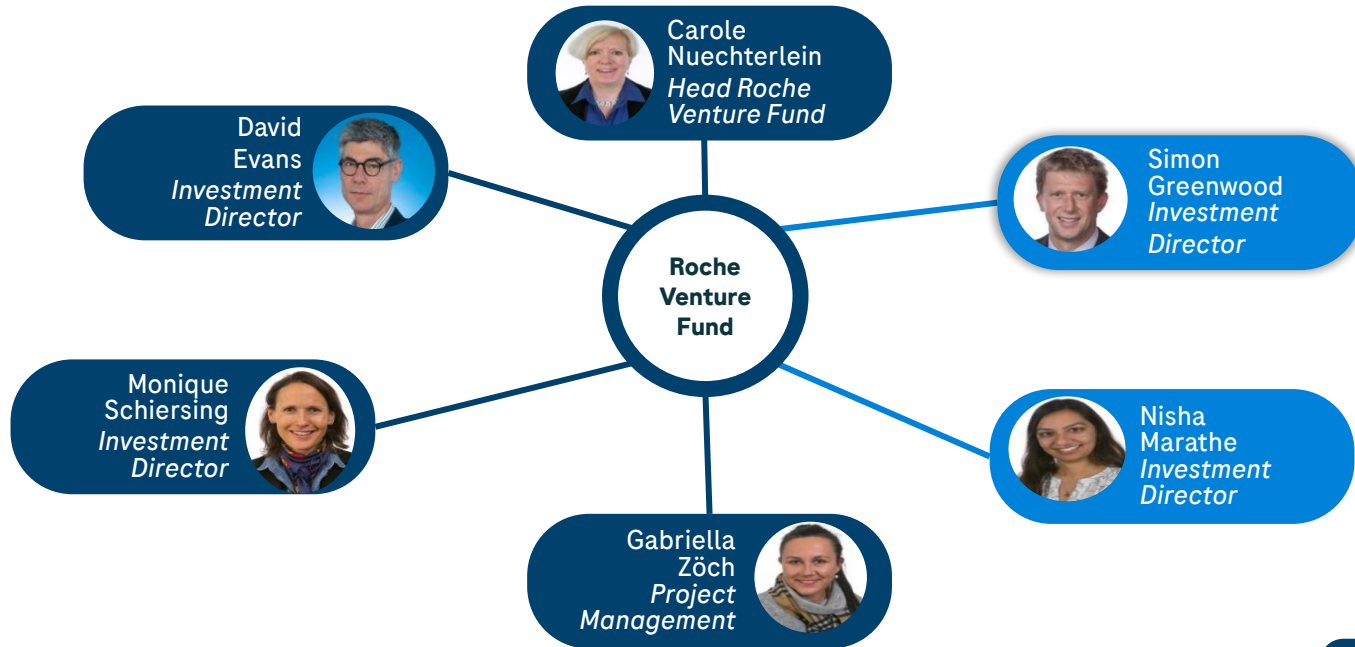
Efficient and transparent process with clearly defined criteria for rapid decision making

Roche Venture Fund: *Raising Venture Capital Funding*

Carole Nuechterlein

The Roche Venture Fund team

Split between Basel & South San Francisco



Basel

South San Francisco

Roche Venture Fund

Connecting innovation to value

The Roche Venture Fund invests to develop commercially successful life science companies

- Accountable for all equity investments made by Roche and Genentech whether made as part of a collaboration or independently
- CHF 750 million evergreen fund allocated from the balance sheet
 - Part of the Group Treasury Organization – independent of Pharma or Diagnostics
 - Performance judged by financial return – no strategic component
 - No rights unless enter into separate collaboration/licensing agreement
- Current portfolio: 37 companies
- Committed to creating new companies that will make a difference in patients' lives

The investing strategy of the Roche Venture Fund

	Strategy
Focus	Series A (or Series A like)
Ownership %	15-20% at first investment
Size of investment	Minimum of CHF 5 M to maximum CHF 25 M during life of investment.
Therapeutics	Pre-clinical
Diagnostics	12-18 months from launch
Board involvement	Must have board or board observer seats

How Roche Venture Fund views investing as part of Roche

Try to invest ahead of Roche's interest

- Investments made independent of the **Pharma & Diagnostics**
 - CHF 5M investment decisions made within the team, additional approvals are Group Treasurer and CFO

- Invested in areas **independent** or **ahead** of R&D units (REDs)/Pharma
 - **Gene therapy**
 - Invested in AveXis in August 2014 when senior R&D management were skeptical about gene therapy despite the data
 - **Digital healthcare**
 - Invested in mySugr, Viewics, Flatiron all ahead of Roche acquiring the companies

Are you ready for VC investment

Or is the technology still an idea in someone's head?

- **Incubate** (without incorporation)
 - VCs want to see some reduction to practice (**de-risking**)
 - **Grants** for academics don't need to be matched (unlike companies)
 - **Cost** to being incorporated

- **Benefits/risks associated** with taking money from angels & high net-worth individuals
 - Set expectation that further funding will be required (i.e. dilution)
 - Ensure they cannot block further financings

- **When do you start talking to VCs?**
 - Your initial goal is to **build a relationship with VCs** – not get their money
 - A good start-up will **start meeting with VCs 1-2 years before they need to raise money**

Your fundraising campaign

- Expect to take **6-12 months**
- Identify **funds to target**
 - Interested in the area you are working on
 - Have fresh capital
 - Can add value beyond money
- Clear and succinct **business plan** that can stand alone in describing investment opportunity
 - Be prepared to adapt business plan based on feedback from prospective investors
 - Listening to VC's feedback is a trait highly appreciated !

→ **Persistence, persistence, persistence**

Fundraising from VC perspective

What do you have that would make a VC want to invest?

- It must be **innovative** and **differentiated**
- There must be a **commercial need**
 - Cool science that doesn't translate to a product is just cool science!
 - Need to have a sense of where you want to be when you grow up
- **What do you have?**
 - **Platform**
 - Is it validated?
 - Do you have a biologist to pick your first product?
 - **Product company**
 - Need a Target Product Profile (TPP) for first product at the very beginning
 - All work/experiments directed to obtaining evidence to support this profile

Business plan/ pitch decks

Things we are thinking about as we hear your pitch (1/2)

■ Science/Technology

- Is it innovative?
- How much data are available now?
- Is there a “killer” experiment and is this included early enough in the plan?
- What IP do you have?

■ Product

- Does it address a *bone fide* unmet need?
- What is the use/indication? Can it be differentiated? What is the TPP?

■ Plan

- Next value inflection point?
- Development pathway and route to regulatory approval/market
- Timelines – realistic?

Business plan/ pitch decks

Things we are thinking about as we hear your pitch (2/2)

■ Team

- Track record, technical and commercial understanding; any gaps/key hires needed?

■ Financing

- Valuation expectations – are these realistic ?
 - Competing against public companies with low valuations
- Money to be raised – fit for purpose? Milestones/deliverables?
- Any “headroom” needed or operational delays, raising more money etc.
- How much more money will likely be needed before an exit?

■ Syndicate

- Is there/can we build a syndicate to fund through to exit?

*“Business opportunities are like buses, there’s always another one coming.”
- Sir Richard Branson*

Standing out from a crowd... negatively

What not to say...

- “Our financial projections/timelines are conservative”
 - Be **realistic** – VCs have far more experience than you with what goes wrong
- “The target market for our product is \$500 billion worldwide”
 - Your target market is the **market achievable with the resources under your business plan** – taking into account both existing and new competition
- “We will cure Cancer, Alzheimer's, and Diabetes”
 - A **focused business plan** is more likely to resonate with investors
- “We have no competition”
 - **Not knowing/recognizing** who and where your **competition** is, is a disaster waiting to happen – having 3 Phase 3s waiting for read-out is not “no competition”

Standing out from a crowd... positively

- Be able to convey the **value proposition in first 5 minutes** of a presentation
- Tell a **story** → focus on a problem and how you are solving it
- Pay attention to **detail** → don't get caught out; credible investors have a keen eye for detail
- Use **SWOT**: Strengths, Weaknesses, Opportunities, Threats
- **Prepare and practice**
 - First impressions are important
 - Detailed planning and preparation will pay off
- Be **tenacious**
 - You are going to hear No from a lot of people before you hear Yes

The VC process - a lot of due diligence

Research and analysis of a company done in preparation for a business transaction

- VC receives & reviews a non-confidential deck
- Initial presentation: typically with one partner at fund
- Non-confidential diligence
- CDA signed
- Confidential diligence
- Presentation to Fund / Partnership
- Term Sheet
- Final diligence, e.g. Full IP diligence (costly & won't do until after term sheet is signed)
- Financing documents
- Close & funding !

Doing now what patients need next