Host: Sanofi

SPRING 2018
PRISME Forum Technical Meeting

PRISME Forum Chair: **Olivier Gien**
VP, Global Head, Medical IT, *Sanofi*

Technical Meeting Chair: **Jürgen Hammer**
Global Head, Data Science; Pharma R&D Informatics, *Roche*

PRISME Forum
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"All meetings, working groups and communications will be open to all Members and any records thereof will be non-confidential and available for inspection by any Member.

The Members acknowledge that discussing any commercially sensitive topics, including costs, volumes, inventories, sales level methods, channels of distribution, access to future products, markets, current or future prices, profitability, ***contract pricing or trading terms*** is prohibited.

The Members of PRISME will strictly comply with all laws relevant to their activities, including US state and federal anti-trust laws and European competition laws."

Host

Olivier Gien, VP, Global Head, Medical IT

Jean-Luc Schmidt, ITS Business Partner R&D Ops

Julie Kohl, Assistant to Olivier Gien

PRISME Forum
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Edsel Calliste-David, Global Lead, Business Relationship & Solutions, IS, *Astellas*

John Gregory, Director, Project & Portfolio Management Business Technology, *Pfizer*

Sebastian Lefebvre, Senior Director Data Analytics & Decision Support, *Alexion Pharmaceuticals*

Laetitia Marossero, ITS R&D, GSC Clinical Digital Solutions, Domain Lead, AI and Wearables, *Sanofi*

Peter McMeekin, CEO, RD Tech Innovation Hub, *GlaxoSmithKline*

Will Pitt, Senior Principal Scientist - CADD, *UCB*

Jason Swift, Director, Early Clinical Development Innovation and Genomics IT, *AstraZeneca*

Barbara Weidgang, Market Excellence & Innovation Manager, *Bayer*

John Wise, Program Coordinator, *PRISME Forum*

2018 Spring

PRISME Forum Technical Meeting Theme:

Artificial Intelligence in Healthcare Part II:
The Practical Application – A European Perspective

PRISME Forum Technical Meeting Agenda (morning)

THURSDAY, November 16, 2017		
08:30	Welcome Notes & Introductions	**Olivier Gien**, VP, Global Head Medical IT, *Sanofi*; Chair, *PRISME Forum* **Jürgen Hammer,** Global Head Data Science; Pharma R&D Informatics, *Roche*; Technical Meeting Chair, *PRISME Forum*
SESSION I A: Plenaries - AI in Biopharma R&D & Healthcare		Chair: **Jürgen Hammer,** Global Head Data Science; Pharma R&D Informatics, *Roche*
09:00	Plenary #1 – Machine Learning in Single Cell Genomics	**Fabian Theis,** Head, Inst of Comput. Biology; Group Leader, Machine Learning, *Helmholtz Zentrum Muenchen*
09:30	Plenary #2 - Machine Learning for Smarter Drug Discov.	**Claus Bendtsen,** Senior Leader, Data Science, *AstraZeneca*
10:00	Coffee Break	
SESSION II: Start-up Company "Pitch" Session		Chair: **Barbara Weidgang,** Market Excellence & Innovation Manager, *Bayer Business Services*
10:30	Introduction	
10:45	1: Iktos – Recent Trends in AI Technologies for De Novo Design	**Yann Gaston-Mathé,** Co-Founder & CEO, *Iktos* **Quentin Perron,** Co-Founder & CSO, *Iktos*
11:00	2: OWKIN – Machine Learning for Data Driven Biopharma R&D	**Meriem Sefta,** Partnerships and Translational Res. Manager, *OWKIN*
11:15	3: Turbine AI-in Silico Experiments on a Simulated Cell	**Szabi Nagy,** Co-Founder & CEO, *Turbine*
11:30	4: Inato – AI-Powered Patient Recruitment	**Kourosh Davarpanah,** Co-founder & CEO, *Inato*
11:45	Conclusions	
	PRISME Forum Start-up Company "Pitch" Session Evaluation Panel Members: **Barbara Weidgang,** Market Excellence & Innovation Manager, *Bayer Business Services* **John Gregory, Director,** R&D Project & Portfolio Management, Business Technology, *Pfizer* **Laetitia Marossero,** ITS R&D, GSC Clinical Digital Solutions, Domain Lead, AI and Wearables, *Sanofi* **Peter McMeekin,** CEO, RD Tech Innovation Hub, *GlaxoSmithKline* **Will Pitt,** Senior Principal Scientist - CADD, *UCB*	

SESSION IA: Plenary Presentations:
AI in Biopharma R&D & Healthcare

Chair: **Jürgen Hammer,** Global Head, Data Science; Pharma R&D Informatics, *Roche*

Fabian Theis, Head of Institute of Computational Biology
and Group Leader, Machine Learning
Helmholtz Zentrum München

Machine Learning in Single Cell Genomics

Claus Bendtsen, Senior Leader, Data Science
AstraZeneca

Machine Learning for Smarter Drug Discovery

SESSION II

START-UP COMPANY "PITCH" SESSION

Chair: Barbara Weidgang
Market Excellence & Innovation Manager, *Bayer Business Services*

The session's objective is to provide a constructive yet relaxed activity to encourage interaction between PRISME Forum members and four start-up companies with a value proposition relevant to the context of the meeting's theme, i.e., AI in biopharma, R&D and Healthcare.

RATIONALE

PRISME Forum members get introduced earlier than they otherwise would to AI-based business propositions relevant to life science R&D / healthcare

Start-up companies have an opportunity to interact with members of the PRISME Forum and get some constructive feedback about their business propositions.

START-UP COMPANY "PITCH" SESSION

Time	Agenda Item	Comments
10:40-10:45	Brief Introductions	• Introduce Moderator and Panel • Explain process • Quick introduction of startup name
10:45-11:45	Each Startup Pitches followed by Q&A (panel and audience)	• Panel take notes and completes scoring spreadsheet provided (slide 6), alongside helpful feedback (slide 7)
11:45-11:50	Conclusion	• Panel thanks the start-ups for their participation
13:00-14:00	Results	• Panel consolidates results and declares "winner" or "favorite" startup (see Panel Assessment Sheet slide 6)
16:45	Awards & Networking Reception	• Announce the "Favorite Presentation" and readout feedback

PRISME Forum Start-up Company "Pitch" Session
Evaluation Panel Members:

Barbara Weidgang

Market Intelligence & Innovation, *Bayer*

John Gregory

Director, R&D Project & Portfolio Management, Business Technology, *Pfizer*

Laetitia Marossero

ITS R&D, GSC Clinical Digital Solutions, Domain Lead AI and Wearables, *Sanofi*

Peter McMeekin

CEO, RD Tech Innovation Hub, *GlaxoSmithKline*

Will Pitt

Senior Principal Scientist, *UCB*

Questions Guide

ASK QUESTIONS ABOUT:

- the unmet need that the start-up is trying to address
- the proposed solution
- the value proposition
- the anticipated users/customers
- the estimated market size, etc.
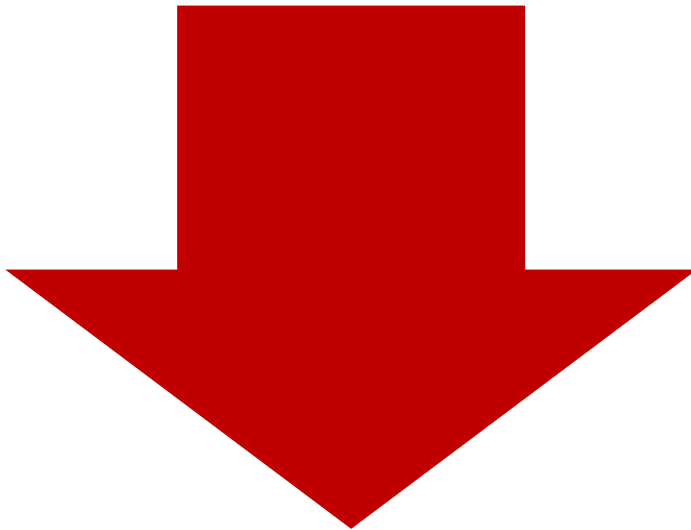
DO NOT ASK:

- questions which could lead to the exposure of any competitive information and/or IP, e.g.
  o regarding technical details
  o regarding how the solution works in detail
- or voice too many opinions about viability or presumed success in the market.

Start-ups

IKTOS	OWKIN	TURBINE	INATO
Recent Trends in AI Technologies for De Novo Design - Iktos Approach	**Machine Learning for Data Driven Biopharma R&D**	**AI-in Silico Experiments on a Simulated Cell**	**AI-Powered Patient Recruitment**
http://iktos.ai/	http://owkin.com/	http://turbine.ai/	https://inato.com//

Yann Gaston-Mathé
Co-Founder & CEO

Quentin Perron
Co-Founder & CSO

Meriem Sefta
Head of Partnerships and Translational Research

Szabi Nagy
Co-Founder & CEO

Kourosh Davarpanah
Co-founder & CEO

SESSION III

Posters

Chair: **Jason Swift,** Director, Early Clinical Development Innovation and Genomics IT, *AstraZeneca*

SESSION III A: Posters	Chair: **Jason Swift,** Director, Early Clinical Development Innovation and Genomics IT, *AstraZeneca*
11:55 Introduction	
12:00 Poster Rotations (four 15-minute rotations)	
P1 Nephro-oncology: Closer Monitoring of Patient Renal Function in Early-Phase Oncology Clinical Trials	**Laura Hutchinson,** Business Analyst, *Cancer Research UK*
P2 Deep Learning in Imaging for Increased Efficiency in Drug Discovery	**Fabian Schmich,** Senior Data Scientist, *Roche*
P3 Meet Bob! The Co-Bot Writer	**Laetitia Marossero,** ITS R&D, GSC Clinical Digital Solutions, Domain Lead, AI and Wearables, *Sanofi* **Arden Manning,** Senior Vice President Marketing, *Yseop*
P4 Modeling and Simulation: Clinical Pharmacometrics	**Angeli Möller,** Head, IT Business Partnering Research, *Bayer*
P5 Artificial Intelligence in Pharmacovigilance	**Armen R. Kherlopian,** Chief Science Officer, *Genpact* **Eric Sandor,** PVAI Business Leader, *Genpact*
P6 Evaluation and Implementation of RPA in GSK R&D	**Megan Bell,** CTO, RD Tech Innovation Hub, *GlaxoSmithKline*
P7 Applications of AI and Machine Learning in Drug Design	**Adrian Stevens,** Director, Product Management Predictive Sciences, *Dassault Systèmes BIOVIA* **Mathias Ganz,** R&D Industry Lifescience Director, *Dassault Systèmes BIOVIA*
13:00 Lunch	
SESSION III B: Posters (cont.)	Chair: **Jason Swift,** Director, Early Clinical Development Innovation and Genomics IT, *AstraZeneca*
14:00 Poster Session (Remaining three 15-minute rotations)	

1 Laura Hutchinson, BusinessAnalyst *Cancer Research UK*

P1: Nephro-oncology: Closer Monitoring of Patient Renal Function in Early-Phase Oncology Clinical Trials

4 Angeli Möller, Head, IT Business Partnering Research, *Bayer*

P4: Modeling and Simulation: Clinical Pharmacometrics

7 Adrian Stevens, Dir., Product Mgmt Predictive Sci., *Dassault Systemes/BIOVIA*
Mathias Ganz, R&D Industry Lifescience Dir., *Dassault Systemes/BIOVIA*

P7: Applications of AI and Machine Learning in Drug Design

2 Fabian Schmich, Sr. Data Scientist *Roche*

P2: Deep Learning in Imaging for Increased Efficiency in Drug Discovery

5 Armen R. Kherlopian, CSO, *Genpact*
Eric Sandor, PVAI Business Leader, *Genpact*

P5: Artificial Intelligence in Pharmacovigilance

3 Laetitia Marossero, ITS R&D, GSC Clinical Digital Solutions, Domain Lead, AI and Wearables, *Sanofi*
Arden Manning, Sr VP, Mktg, *Yseop*
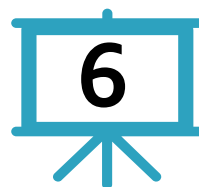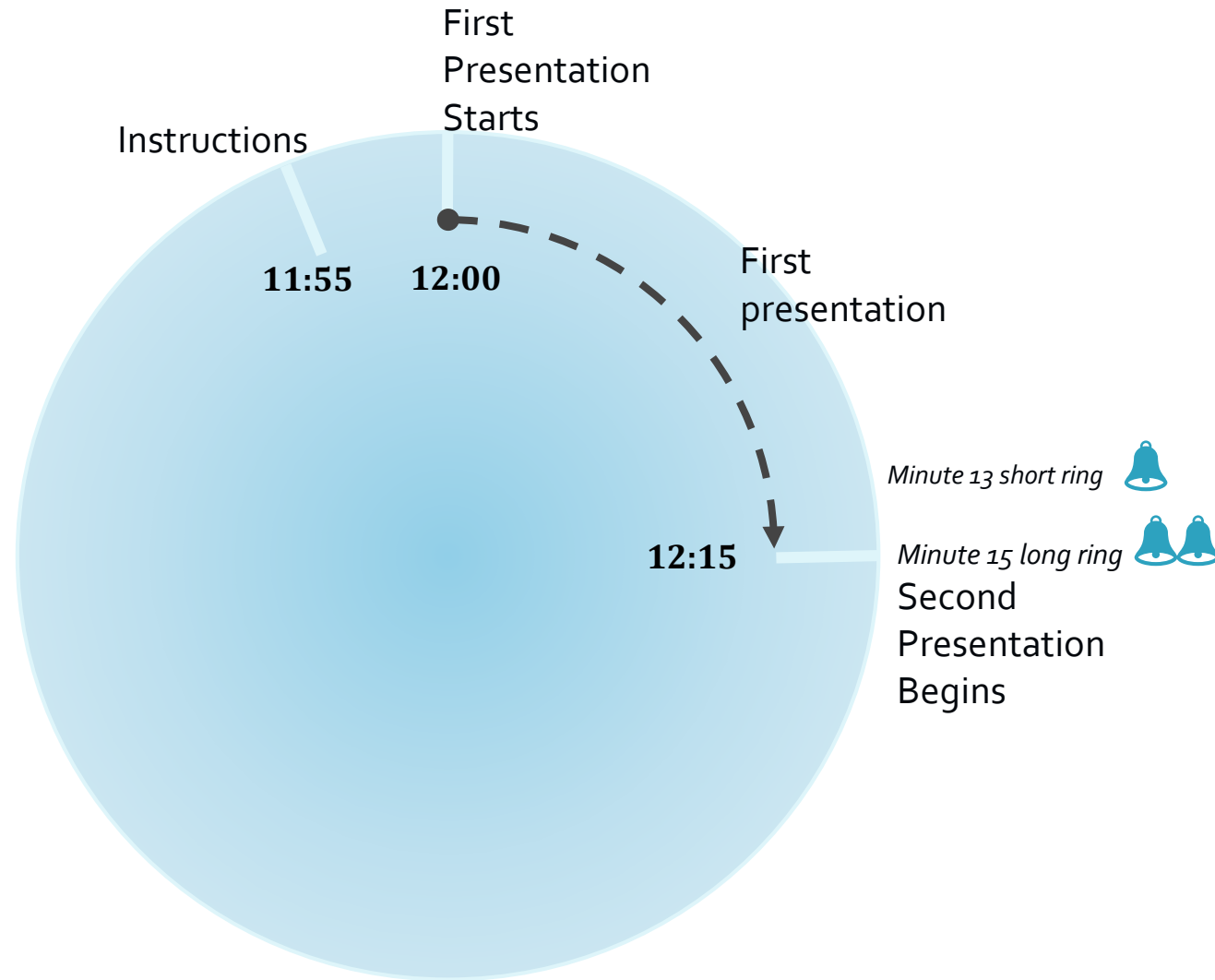
P3: Meet Bob! The Co-Bot Writer

6 Megan Bell, CTO, RD Tech Innovation Hub, *GlaxoSmithKline*

P6: Evaluation and Implementation of RPA in GSK R&D

Instructions

First Presentation Starts

11:55 **12:00**

First presentation

Minute 13 short ring 🔔

12:15 *Minute 15 long ring* 🔔🔔

Second Presentation Begins

INSTRUCTIONS @11:55am

Session Chair will invite participants to take their seats.

Chair will open the session by introducing the presenters, their posters, along with the session structure and flow.

PRISME Forum staff will ring the bell on each rotation *(one ring at minute 13 of each presentation and then a longer ring at minute 15 when the presentation must end).*

Delegates are invited to identify the color of their lanyard and match to rotation called out by staff: "Rotation 1, 2, …n".

Rotations will involve shift of participants' groups to the next poster on their right.

FIRST SET OF ROTATIONS:

ROTATION 1 – 12:00	ROTATION 2 – 12:15	ROTATION 3 – 12:30	ROTATION 4 – 12:45
P1 – Orange	P1 – Gray	P1 – Green	P1 – Yellow
P2 – Blue	P2 – Orange	P2 – Gray	P2 – Green
P3 – Red	P3 – Blue	P3 – Orange	P3 – Gray
P4 – Purple	P4 – Red	P4 – Blue	P4 – Orange
P5 – Yellow	P5 – Purple	P5 – Red	P5 – Blue
P6 – Green	P6 – Yellow	P6 – Purple	P6 – Red
P7 – Gray	P7 – Green	P7 – Yellow	P7 – Purple

BREAK FOR LUNCH

SECOND SET OF ROTATIONS:

ROTATION 5 – 14:00	ROTATION 6 – 14:15	ROTATION 7 – 14:30
P1 – Purple	P1 – Red	P1 – Blue
P2 – Yellow	P2 – Purple	P2 – Red
P3 – Green	P3 – Yellow	P3 – Purple
P4 – Gray	P4 – Green	P4 – Yellow
P5 – Orange	P5 – Gray	P5 – Green
P6 – Blue	P6 – Orange	P6 – Gray
P7 – Red	P7 – Blue	P7 – Orange

ORANGE

Dimitris Agrafiotis	*Covance/LabCorp*
Alastair Binnie	*BMS*
Yann Gaston-Mathe	*Iktos*
Birgitte Mathiesen	*Novo Nordisk*
Maritza Osorio	*Celgene*
Will Pitt	*UCB*
Jean-Luc Schmidt	*Sanofi*
Jason Swift	*AstraZeneca*

BLUE

Andrew Allen	*Regeneron*
Christian Baber	*Shire*
Dave Christie	*CSL Behring*
Prashaant Huria	*AstraZeneca*
Quentin Perron	*Iktos*
Benoit Poupin	*IPSEN*
Carol Rohl	*Merck*
Meriem Sefta	*Owkin*
Jens Noack Skaerbaek	*Novo Nordisk*

RED

Claus Bendtsen	*AstraZeneca*
James Cronin	*Alexion*
Matteo di Tommaso	*Sanofi*
Peter McMeekin	*GSK*
Arun Nayar	*Amgen*
Tatsuyuki Takahashi	*Mitsubishi Tanabe*
Sandra Tremps	*Merck*
Ashok Upadhyay	*Otsuka*

PURPLE

Joel Ekstrom	*Ionis*
Martin Erkens	*Roche*
Kourosh Davarpanah	*Inato*
Pete Dhillon	*Daiichi-Sankyo*
John Gregory	*Pfizer*
Agnes Huot	*Ipsen*
Sylvain Nicolas	*Sanofi*
David Sedlock	*Takeda*

YELLOW

Massimo de Francesco	*UCB*
Lars Greiffenberg	*AbbVie*
Sylvain Grivel	*Sanofi*
Jürgen Hammer	*Roche*
Klaus Hofenbitzer	*Celgene*
Scott Oloff	*Boehringer Ingelheim*
Etienne Van Der Elst	*Sanofi*
Barbara Weidgang	*Bayer Business Serv*

GREEN

Olivier Gien	*Sanofi*
Andreas Friese	*Bayer*
Aditi Kumar	*Amgen*
Roy Ladd	*AbbVie*
Bruno Larmurier	*Servier*
Geert Litjens	*Radboud University*
Patrick Middag	*BMS*
Szabi Nagy	*Turbine*
Prateek Peres-da-Silva	*Knowledgent*

GRAY

John Apathy	*Celgene*
Michael Cassidy	*Regeneron*
Dan Chapman	*UCB*
Rémi Chossinand	*Sanofi*
Andrea de Souza	*Lilly*
Haibo Jiang	*Santen*
Tomoyuki Matsunaga	*Takeda*
Fabian Theis	*Helmholtz Zentrum*
Ari Yacobi	*Knowledgent*

POSTER ROTATIONS (lanyard colors)

PRISME Forum Technical Meeting Agenda (afternoon)

SESSION I B: **Plenary Presentations - AI in Biopharma R&D**		Chair: **Jürgen Hammer,** Global Head Data Science; Pharma R&D Informatics, *Roche*; Technical Meeting Chair, *PRISME Forum*
14:45	Plenary #3 - Applications of Deep Learning in Computational Pathology	**Geert Litjens,** Assistant Professor, *Radboud University Nijmegen Medical Center*
15:15	Plenary #4 - Improving Clinical Outcome Assessments Using Robotic Devices and Machine Learning and Other Scattered Thoughts on Healthcare Technology, AI, and Hype	**Dimitris Agrafiotis,** Chief Data Officer and Head of Technology Products, *Covance/LabCorp*
SESSION IV: **Break-out Session & Coffee**		Chair: **Rémi Chossinand,** ITS Head of Clinical Digital, *Sanofi*
15:45	Breakout Session – Members and meeting guests will be divided into four groups led by co-captains	Co-captains: Group A: SESSION II - Barbara Weidgang, Bayer; Yann Gaston-Mathé, Quentin Perron, Iktos Group B: SESSION IA - John Gregory, Pfizer; Meriem Sefta, Owkin Group C: SESSION III - Laetitia Marossero, Sanofi; Szabi Nagy, Turbine Group D: SESSION IB - Peter McMeekin, GSK; Kourosh Davarpanah, Inato; Will Pitt, UCB
16:15	Plenary Session – Readouts from breakout groups	
SESSION V: **Meeting Summary, Awards & Reception**		Chair: **Jürgen Hammer,** Global Head Data Science; Pharma R&D Informatics, *Roche*; Technical Meeting Chair, *PRISME Forum*
16:45	Meeting Summary	
17:00	Awards & Networking Reception	

SESSION IB:
Plenary Presentations - AI in Biopharma R&D

Chair: Jürgen Hammer, Global Head, Data Science, Pharma R&D Informatics, *Roche*

Geert Litjens, Assistant Professor, *Radboud University Nijmegen Medical Center*

Applications of Deep Learning in Computational Pathology

Dimitris Agrafiotis, Chief Data Officer and Head of Technology Products, *Covance/LabCorp*

Improving Clinical Outcome Assessments Using Robotic Devices and Machine Learning and Other Scattered Thoughts on Healthcare Technology, AI, and Hype

SESSION IV

BREAKOUT
SESSION

Chair: **Rémi Chossinand,** ITS Head of Clinical Digital, *Sanofi*

OBJECTIVE

- Create a follow-on paper – from the Fall 2017 paper – on the topic of "Artificial Intelligence in Healthcare Part II: The Practical Application – A European Perspective"

METHODOLOGY

- Use the Technical Meeting as a primary information source for the paper.
- Use the different breakout groups to examine in details different aspects of the Technical Meeting.
- Provide the paper's authors with sufficient detail to write the framework of the paper.

BREAKOUT GROUPS

GROUP A: SESSION II
Barbara Weidgang, Bayer
Yann Gaston-Mathé,
Quentin Perron, Iktos

- Massimo de Francesco (UCB)
- Pete Dhillon (Daiichi-Sankyo)
- Joel Ekstrom (Ionis)
- Mathias Ganz (Dassault)
- Haibo Jiang (Santen)
- Geert Litjens (Radboud U.)
- Arden Manning (Yseop)
- Patrick Middag (BMS)
- Jens Noack Skaerbaek (Novo)
- Maritza Osorio (Celgene)
- Jean-Luc Schmidt (Sanofi)
- David Sedlock (Takeda)
- Etienne Van Der Elst (Sanofi)

GROUP B: SESSION IA
John Gregory, Pfizer and
Meriem Sefta, Owkin

- Dimitris Agrafiotis (Covance)
- John Apathy (Celgene)
- Claus Bendtsen (AstraZeneca)
- Alastair Binnie (BMS)
- Dan Chapman (UCB)
- Rémi Chossinand (Sanofi)
- Andrea de Souza (Lilly)
- Martin Erkens (Roche)
- Armen Kherlopian (Genpact)
- Aditi Kumar (Amgen)
- Roy Ladd (AbbVie)
- Scott Oloff (B-I)
- Prateek Peres-da-Silva (Knwldgt)
- Benoit Poupin (IPSEN)
- Carol Rohl (Merck)
- Adrian Stevens (Dassault)

GROUP C : SESSION III
Laetitia Marossero, Sanofi and
Szabi Nagy, Turbine

- Christian Baber (Shire)
- Michael Cassidy (Regeneron)
- David Christie (CSL Behring)
- Matteo di Tommaso (Sanofi)
- Andreas Friese (Bayer)
- Sylvain Grivel (Sanofi)
- Jürgen Hammer (Roche)
- Agnes Huot (Ipsen)
- Klaus Hofenbitzer (Celgene)
- Tomoyuki Matsunaga (Takeda)
- Eric Sandor (Genpact)
- Jason Swift (Astra Zeneca)
- Tatsuyuki Takahashi (Mitsubishi)
- Sandra Tremps (Merck)

GROUP D: SESSION IB
Peter McMeekin, GSK,
Kourosh Davarpanah, Inato,
Will Pitt, UCB

- Andrew Allen (Regeneron)
- Megan Bell (GSK)
- Olivier Gien (Sanofi)
- Lars Greiffenberg (AbbVie)
- Prashaant Huria (AstraZeneca)
- Laura Hutchinson (Cancer Res.)
- Bruno Larmurier (Servier)
- Birgitte Mathiesen (Novo)
- Angeli Möller (Bayer)
- Arun Nayar (Amgen)
- Sylvain Nicolas (Sanofi)
- Fabian Schmich (Roche)
- Fabian Theis (Helmholtz Zentr)
- Ashok Upadhyay (Otsuka)
- Ari Yacobi (Knowledgent)

Captain readouts: (5 min each)

What was the focus of your groups discussion?

What were 2-3 key learnings about which you think the PRISME Forum members should be acting upon, in order to achieve the full potential of AI?

Anything else that you want to share as a learning from your breakout group?

Rémi Chossinand: Leading Q&A

SESSION V

MEETING SUMMARIES
AND AWARDS

Chair: **Jürgen Hammer**, Global Head, Data Science, Pharma R&D Informatics, *Roche;*

Technical Meeting Chair, *PRISME Forum*