



**HEART TEAM**  
**2016 MITRAL VALVE MEETING**  
**FEBRUARY 14 – 16, 2016**  
**ZURICH, SWITZERLAND**

**Workshop**  
**Guide**



## MITRAL VALVE MEETING

### A meeting designed for the CONTEMPORARY HEART-TEAM

The first *Mitral Valve Meeting* was a great success which went beyond expectations. We now feel ready to take this venture a step forward in order to make the meeting classic par excellence for those who are passionate about the mitral valve.


The upcoming **2<sup>nd</sup> Mitral Valve Meeting 2016** will feature even more interaction and practical workshops. We plan to organize educational events for the Heart-Team, with hands-on new technologies, imaging and other subjects related to mitral valve interventions, from surgery to catheter-based technologies. Several live cases will enable interactive and passionate discussions. Collaboration with the industry will expose participants to the most modern technologies and give them a glimpse into the future.

Make sure that you are part of it! Contribute and shape the future of valve interventions! Together we can define the complementary role of medical, transcatheter and surgical therapies. As modern physicians, we should be aware of the different options available to us and be able to choose the best one for the patient. This task cannot be achieved without a team approach.

The Heart-Team approach involves strict collaboration of physicians with different backgrounds sharing the same objective of delivering the most appropriate and modern therapy tailored to patient needs.

*Heart-Team.org* is the website designed for this multidisciplinary team. In the future, it is our ambition that this site will allow physicians to find the necessary information to fill gaps of knowledge between their specialities. Our aim is to improve communication and, in turn deliver seamless care to patients. On the website you will currently find some material from the *1st Mitral Valve Meeting* including our scientific program and faculty.

Once again, we would like to take this opportunity to invite you to register, to attend and participate in the second edition of this exciting and growing educational program.



Francesco Maisano

## CONGRESS VENUE

University Hospital Zurich  
Rämistrasse 100  
8091 Zurich  
Switzerland

## CONGRESS SECRETARIAT



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## SCIENTIFIC SECRETARIAT

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## REGISTRATION DESK

Sunday, Feb. 14, 2016 08:00 – 20:00  
Monday, Feb. 15, 2016 07:00 – 19:00  
Tuesday, Feb. 16, 2016 07:00 – 15:30

## ACCREDITATIONS



SGHC  
SSCC

SGHC – Swiss Society  
for Cardiac and thoracic  
vascular surgery  
The event is accredited  
with 20 credits.

### SGK - Schweizerischen Gesellschaft für Kardiologie

The Event is credited with 24h 1 A.

### SGAR - Schweizerische Gesellschaft für Anästhesiologie und Reanimation

The Event is credited with 21.5  
Credits (Sunday 8 Credits, Monday  
8 Credits, Tuesday 5.5 Credits)

**Certificates of attendance  
will be send out by email  
after the conference!**

## THE MITRAL APP



## PROGRAM OVERVIEW

**Workshop day:** 14 February 2016

**Event location:** University Hospital Zurich

**08:00 - 08:30** Registration

**08:30 - 09:00** Introduction to the Workshops  
*F. Maisano* *Room Auditorium*

**09:15 - 11:15** First workshop module  
*Workshops 1 - 8*

**11:15 - 12:00** Lunch Symposium

**12:00 - 14:00** Second workshop module  
*Workshops 1 - 8*

**14:00 - 14:15** Coffee break - 3D reality

**14:15 - 16:15** Third workshop module  
*Workshops 1 - 8*

**16:30 - 18:30** Fourth workshop module  
*Workshops 1 - 8*  
*Workshop 9: Innovation room*

## During the Workshop Day - Educational activities

During the coffee break and the lunch time take the chance to improve your knowledge about imaging, printing and simulation! (no registration required)

- Join the Lunch Symposium “3D Imaging and Simulations – The future is now” from 11:15 to 12:00
- Meet the expert:
  - during the Coffee break talking about 3D virtual reality with Manuel Schaffner (ETH)

### Lunch Symposium

**Room A16**

### 3D Imaging and Simulations – The future is now

11:15 – 11:25	3D Medical virtuality Reality – a new view to anatomy <i>Dr. Marc Lausberg, MBA - PS-medtech</i>
11:25 – 11:35	The future is now – physics-based simulation opens new gates in the medical world <i>Matthieu De Beule - FE OPS</i>
11:35 – 11:45	The living heart project – An initiative to transform medical care through realistic simulation <i>Marco Stevanella - 3DS</i>
11:45 – 11:55	3D Holographic Imaging: The entry to a new world of medical perspectives <i>Elchanan Bruckheimer, MBBS - Realview</i>
11:55 – 12:00	Discussion

### Coffee break - Guest speech

**Room A16**

14:00 – 14:10	3D Medical virtuality Reality – a new view to anatomy <i>Manuel Schaffner, ETH</i>
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## Workshop 1

# 3D anatomy of the Mitral Valve

**Chair: A. Weber**

**Faculty: N. Borenstein, C. Gruner, M. Reismann, P.W. Serruys**

**Workshop room: Room A13**

## THE HEART LAB

### Target

- Cardiologists
- Interventional cardiologists
- Radiologists
- Heart failure specialists
- Cardiac Anesthesiologists

### Objective

- Understand mitral valve anatomy
- Compare anatomy to imaging
- Identify therapy targets

### Trainers

- N. Borenstein
- C. Gruner
- M. Reisman
- P.W. Serruys
- A. Weber

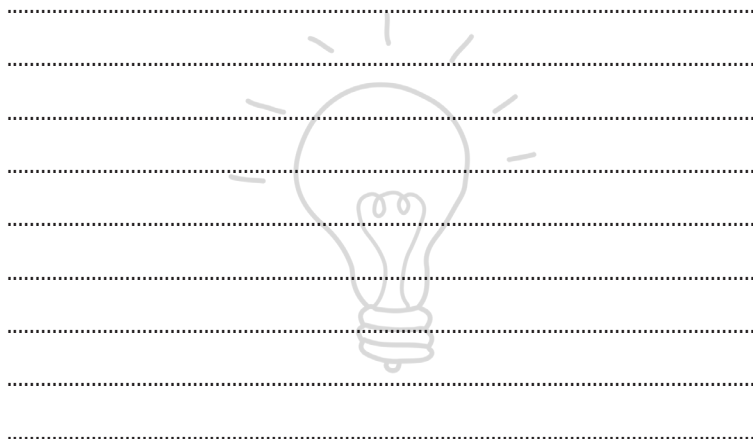
### Topics

#### **Wet lab demonstration of:**

- Anatomy of the mitral valve
- Pathology of the mitral valve
- Comparative anatomy and imaging
- What is relevant for surgery and interventions

Program	Duration	Trainer
1. Anatomy of the Mitral Valve: Anatomical and Functional ex-vivo imaging [live demonstration of anatomical specimens]	30 min	<i>M. Reisman, N. Borenstein</i>
2. Pathology of the Mitral Valve with demonstration of Pathological human specimens. Parallel echocardiographic imaging comparison	30 min	<i>M. Reisman, A. Weber, C. Gruner</i>
3. Hands-on training with pig hearts specimens: 3D dissection Echo imaging of the Mitral Valve: standard views	40 min	<i>A. Weber, C. Gruner</i>
4. What is relevant for surgery and interventions: Demonstration of implanted devices (surgical and percutaneous) on pig hearts specimen and simulators	20 min	<i>A. Weber, P.W. Serruys</i>

Notes: .....



## Workshop 2

### CT scan - A fantastic Journey through the World of Multimodality planning and navigation Technologies

**Chair: A. Plass**

**Faculty: P. Blanke, V. Jelnin, D. Leite, T.D.L. Nguyen-Kim, G. Ogrodnick, J. Rieck, C. Ruiz, T. Sheps, L. Verstraeten**

**Workshop room: Room B22, B23, B35**

#### Target

- Cardiologists
- Cardiac surgeons
- Interventional cardiologists
- Radiologists

#### Objective

- Establish the Rosetta Stone of imaging to help communication
- Understand mitral valve anatomy through imaging

#### Topics

- The participants will attend an interactive hands-on multi-modular workshop and experience the new opportunities of imaging tools for better preparation and performance of mitral valve treatments. The workshop will be a path with interactive stop-overs in three different rooms. Additionally a lunch symposium, a coffee break lecture and an after-workshop guest speech for deeper and advanced inside views with presentations about the overall variety of latest soft-and hardware.
- The attendees will learn about different techniques and their handling, further they will understand the possibilities of application. This includes Heart-and Echnavigator of Philips Healthcare, 3mensio of Pie medical, Circle cardiovascular imaging and OsiriX MD of Pixmeo.
- The lunch symposium will present the value of 3D printing and new tools for 3D holographic illustration as well as imaging for risk prediction. Companies like real view medical holography, FEOPS – insights for excellence, 3DS –Dassault systemes, PS-Medtech and Materialise will demonstrate the advantages and opportunities of their technologies.
- For deeper individual discussions all companies will be available during the complete work-shop-day at a mini-exhibition.



**Group allocation** (During each Session, the Participants will be allocated to three Groups (A, B, C) to stop-over the three imaging rooms)

Chronology (30 min)	Room 1 <b>B23 - 3mensio</b>	Room 2 <b>B22 - Circle</b>	Room 3 <b>B35 - Philips/Osiris</b>
1st	Group A	Group B	Group C
2nd	Group B	Group A	Group C
3rd	Group C	-	Group A, B
4th	-	Group C	Group A, B

## Room 1 (B23) - 3mensio (30 min)

*Faculty: Thi Dan Linh Nguyen-Kim, Julian Rieck, Luc Verstraeten*

- Assessing the complexity of Mitral annulus (tracing annulus, sizing, calcification assessment)
- Fluoroscopic projections LVOT obstruction (LVOT, virtual device, mitral-aorta angle)
- Coronary sinus and its relationship to Mitral annulus
- Transapical approach

## Room 2 (B22) - Circle Cardiovascular Imaging (30 min)

*Faculty: Philipp Blanke, Daniel Leite, Greg Ogradnick*

- Planning overview and anatomical assessment (prolapses, flails, calcifications, etc)
- Apical access route planning
- Annulus measurement for device selection
- LVOT assessment
- Peri-procedure planning, including Coronary Sinus, Fluoro view and determining optima C-arm position

## Room 3 (B35) - Philips Healthcare (40 min)

*Faculty: Carlos Ruiz, Vladimir Jelnin*

### HeartNavigator

- CTA import
- Automatic segmentation + manual customizations
- Automatic & manual measurements (annulus /LVOT/Mitral structures) + landmarking
- Device planning + determination of working projection
- Planning of trans-apical
- Registration of CT to fluoro (injections or using implants)
- Fluoro-overlay, different visualization of CT, C-arm recall.

### EchoNavigator

- Basic operation: registration (auto/manual), visualization options (different view options, overlay vs side-by-side), truncation of 3D TEE image, annotations + measurements
- Mitral planning: optimized trans-septal approach
- Real-time imaging of anatomy + device during device placement
- Assessment of procedure success using color Doppler + fluoroscopy

## Room 3 (B35) - Osiris (20 min)

*Faculty: Tal Sheps*

- Mitral valve structures identification
- Landmark identification
- Procedural planning
- How to plan a structural mitral intervention on your laptop

### Workshop 3

# Mitral Valve and Heart Failure

**Chair:** M. Wilhelm

**Faculty:** M. Enriquez-Sarano, G. Filippatos, M. Frank,  
F. Grigioni, M. Halbe, J. Steffel

**Workshop room:** Room A3

## UPDATE

### Target

- Cardiologists
- Cardiac surgeons
- Interventional cardiologists
- Radiologists
- Heart failure specialists
- Cardiac Anesthesiologists

### Objective

- To understand the importance of interaction between device and medical therapy interaction
- Review current medical therapy for patients with MV regurgitation (including CRT) and timing for MV interventions
- To help decision-making
- To support patient selection

### Topics

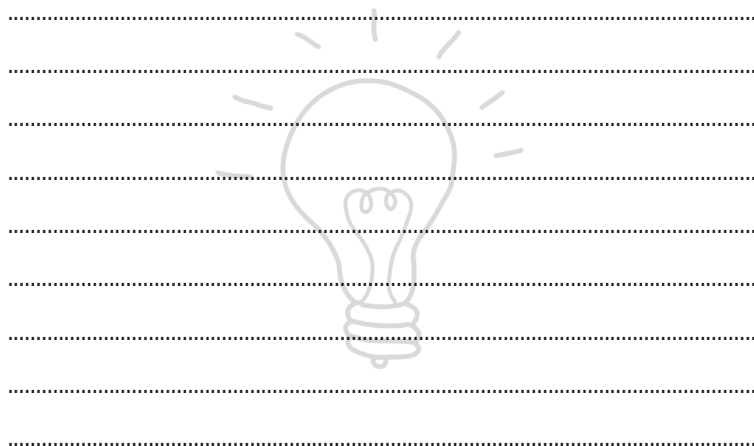
- Role of medical therapy
- Rationale of MR correction
- MR correction and reverse remodeling
- Other device therapies for HF (VAD, CRT, HTx, Ventricular Remodeling treatment)

### Trainers

- M. Enriquez-Sarano
- G. Filippatos
- M. Frank
- F. Grigioni
- M. Halbe
- J. Steffel
- M. Wilhelm

Program	Duration	Trainer
1. Introduction to the workshop	5 min	<i>M. Wilhelm</i>
2. Heart failure: epidemiology and classification	10 min	<i>M. Frank</i>
3. Natural history and prognostic impact of functional mitral regurgitation in heart failure	20 min	<i>G. Filippatos, F. Grigioni, M. Enriquez-Sarano</i>
4. ICD and CRT in heart failure with mitral regurgitation	15 min	<i>J. Steffel</i>
5. Mechanical circulatory support	15 min	<i>M. Wilhelm</i>
6. LVAD, BVAD, ECMO, CRT, Ventricular Remodeling Demonstration with simulators	25 min	<i>M. Halbe, M. Wilhelm</i>
7. LVAD, BVAD, ECMO, CRT, Ventricular Remodeling hands-on training	30 min	<i>Participants</i>

Notes: .....



### Workshop 4

# Wire skills, therapy simulators and transseptal puncture training

**Chair:** F. Maisano, L.K. von Segesser

**Faculty:** R. Corti, T. Feldman, O. Franzen, F. Nietlispach, A. Vahanian, S. Windecker

**Workshop room:** Room U14

## The HeartLab - SIMULATOR

### Target

- Cardiologists
- Cardiac surgeons
- Interventional cardiologists

### Trainers

- R. Corti
- T. Feldman
- O. Franzen
- F. Maisano
- F. Nietlispach
- L.K. von Segesser
- A. Vahanian
- S. Windecker

### Objective

- To learn and review the common steps of mitral interventions (TS puncture, LA navigation)
- To review the material and procedural skills
- To train on wire skills with simulators

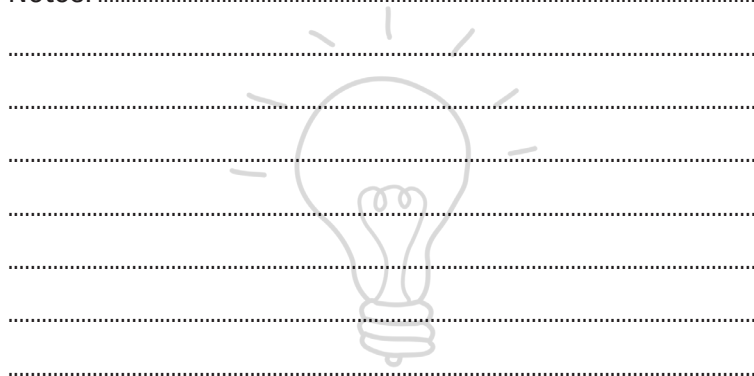
### Topics

#### **Wire skills nomenclature**

- Projections for mitral interventions
- Transseptal puncture - Left Atrial navigation - LAAo
- Access and closure

Program	Duration	Trainer
1. Introduction and key objectives	5 min	<i>L. K. von Segesser, A. Vahanian</i>
2. Review of wire and catheter nomenclature [Lecture]	15 min	<i>F. Maisano, F. Nietlispach</i>
3. Wire skill simulator [Hands-on]	20 min	<i>Participants</i>
4. Transseptal puncture: how to do it [Lecture]	10 min	<i>R. Corti, A. Vahanian, S. Windecker, O. Franzen</i>
5. LA navigation for mitral intervention (MitraClip simulator, Cardioband Echo beating simulator) and LAA occlusion [Lecture]	10 min	<i>T. Feldman, F. Maisano, A. Vahanian</i>
6. Access closure [Lecture]	10 min	<i>F. Nietlispach, F. Maisano</i>
7. Transseptal simulator [Hands-on]	15 min	<i>Participants</i>
8. 3D Echocardiography beating simulator for LA navigation and LAA occlusion [Hands-on]	20 min	<i>Participants</i>
9. Access closure [Hands-on]	15 min	<i>Participants</i>

Notes: .....



### Workshop 5

# Intraprocedural TEE

**Chair: F. Tanner, M. Zuber**

**Faculty: F. Faletra, R. Hahn, S. Stämpfli,  
R. S. von Bardeleben, N. Wunderlich**

**Workshop room: Room C1**

## UPDATE - SIMULATOR

### Target

- Echocardiographist
- Interventional cardiologist
- Cardiac surgeon
- Anesthesiologist

### Objective

- Basics of Echo guidance (commonly used views and nomenclature)
- Screening and patient selection

### Trainers

- F. Faletra
- R. Hahn
- S. Stämpfli
- F. Tanner
- R. S. von Bardeleben
- N. Wunderlich
- M. Zuber

### Topics

- Basic of echo
- Patient selection
- Treatment target guidance
- Procedural Navigation

Program	Duration	Trainer
1. Echo projections for Mitral Interventions	20 min	<i>F. Faletta</i>
2. Hands-on Echosimulator	20 min	<i>S. Stämpfli</i>
3. Step by Step guidance for MitraClip	20 min	<i>R. Hahn, N. Wunderlich, R. S. von Bardeleben</i>
4. Hands-on on MitraClip simulation software	20 min	<i>F. Tanner</i>
5. Step by Step guidance for Cardioband	20 min	<i>M. Zuber</i>
6. Hands-on Cardioband echo-simulator	20 min	<i>M. Zuber</i>

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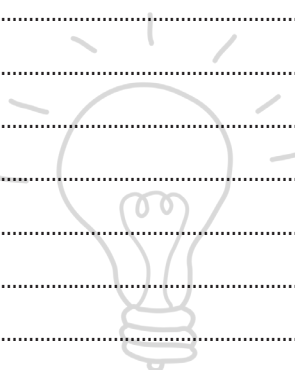
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### Workshop 6

# Anesthesia for MV interventions

**Chair: D. Bettex**

**Faculty: F. Buddeberg, T. Horisberger**

**Workshop room: Room U13**

## UPDATE

### Target

- Anesthesiologist
- Intensivist
- Echocardiographer
- Interventional cardiologist
- Cardiac surgeon

### Objective

- To understand hemodynamics after mitral valve interventions
- To improve perioperative decision-making

### Trainers

- D. Bettex
- F. Buddeberg
- T. Horisberger

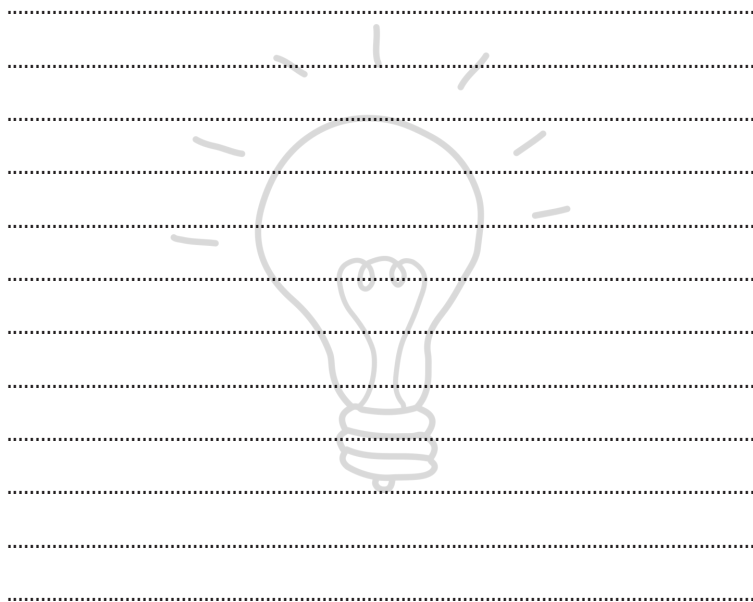
### Topics

- Hemodynamics of the poor LV function – Mitral Clip versus MVR
- Monitoring and management during Mitral interventions
- Intraoperative TOE – Mitral valve repair (Cases discussion)
- Associated complications
- Case presentation



Program	Duration	Trainer
1. Anesthetic management of Mitral interventions	30 min	<i>F. Buddeberg</i>
2. Perioperative complications of Mitral interventions: lecture and case discussion	30 min	<i>T. Horisberger</i>
3. MVR and SAM: lecture and case discussion	30 min	<i>F. Buddeberg</i>
4. Intraoperative TEE and the mitral valve: case discussion	30 min	<i>D. Bettex</i>

Notes: .....



### Workshop 7

# MV surgery: repair and replacement techniques

**Chair:** S. Benussi, R. Chitwood

**Faculty:** O. Alfieri, S. Demertzis, G. Fontana, M. Glauber, M. Mack, D. Reser, H. Vanermen, P. Vogt

**Workshop room:** Room A11

## The HeartLab

### Target

- Cardiologists
- Cardiac surgeons
- Interventional cardiologists
- Radiologists
- Heart failure specialists
- Cardiac Anesthesiologists

### Topics

#### **Wet lab demonstration of**

- Quadrangular resection
- Edge to edge Alfieri repair
- Chordal replacement
- Annuloplasty
- Replacement
- MIC training module

### Objective

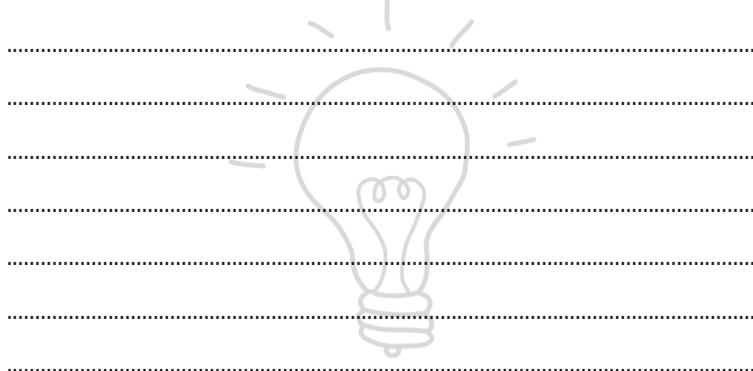
- Wet-lab demonstration of surgical techniques
- One-to-one interaction with the expert

### Trainers

- O. Alfieri
- R. Chitwood
- S. Demertzis
- G. Fontana
- M. Glauber
- M. Mack
- D. Reser
- H. Vanermen
- P. Vogt

Program	Duration	Trainer
Introduction and key objectives	5 min	<i>R. Chitwood</i>
STEP 1: Approach the Mitral Valve: Access, Exposure, Cardiac protection [Lecture and Demonstration on dummy]	10 min	<i>D. Reser</i>
STEP 2: Mitral Valve Analysis: Implications for repair strategy [Lecture, Demonstration and Hands-on]	20 min	<i>O. Alfieri</i>
STEP 3: Leaflet resection techniques (quadrangular, triangular, sliding) [Lecture, Demonstration and Hands-on]	20 min	<i>O. Alfieri, P. Vogt</i>
STEP 4: 5 rules for minimally invasive mitral valve repair [Lecture and Demonstration]	20 min	<i>H. Vanermen</i>
STEP 5: Chordal techniques [Lecture, Demonstration and Hands-on]	20 min	<i>R. Chitwood, S. Demertzis, M. Mack</i>
STEP 6: Ring, Sutures and Prosthesis: modern surgeon toolbox [Lecture, Demonstration and Hands-on]	25 min	<i>M. Glauber, G. Fontana</i>

Notes: .....



### Workshop 8

# Tricuspid Valve - The last frontier: all you need to know about the forgotten valve

**Chair:** M. Taramasso, A. Guidotti

**Faculty:** E. Agricola, P. Denti, M. Enriquez-Sarano, F. Grigioni, R. Hahn, A. Latib, G. Nickenig, J. Schofer, H. Vanermen, J. G. Webb

**Workshop room:** Room B1

## The HeartLab

### Target

- Cardiologists
- Cardiac surgeons
- Interventional cardiologists
- Radiologists
- Heart failure specialists
- Cardiac Anesthesiologists

### Topics

- Wet lab demonstration of:
- Anatomy of the tricuspid
  - Tricuspid valve surgical repair techniques
  - Novel transcatheter therapies on Simulators

### Objective

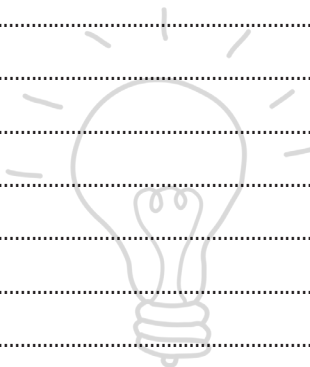
- Wet-lab demonstration of surgical techniques
- One-to-one interaction with the expert

### Trainers

- |                      |                |
|----------------------|----------------|
| • 4Tech              | • Mitralign    |
| • E. Agricola        | • G. Nickenig  |
| • P. Denti           | • J. Schofer   |
| • M. Enriquez-Sarano | • M. Taramasso |
| • F. Grigioni        | • H. Vanermen  |
| • R. Hahn            | • J. G. Webb   |
| • A. Latib           |                |

Program	Duration	Trainer
1. Introduction and key objectives	5 min	<i>M. Taramasso</i>
2. The Forgotten valve: epidemiology, prognostic impact and clinical presentation of TR	15 min	<i>M. Enriquez-Sarano, F. Grigioni</i>
3. Imaging of the tricuspid valve	15 min	<i>E. Agricola, R. Hahn</i>
4. 4Tech state of the art	7 min	<i>P. Denti, A. Latib</i>
5. Edwards program on FTR	7 min	<i>J. G. Webb</i>
6. MitraClip on Tricuspid	7 min	<i>P. Denti, G. Nickenig</i>
7. Mitralign state of the art	9 min	<i>J. Schofer, A. Latib</i>
8. Mitralign Wet Lab procedural demonstration	15 min	<i>Mitralign</i>
9. 4Tech tecnologia bench simulation	15 min	<i>4Tech</i>
10. Hands-on Percutaneous Techniques – Wet lab tricuspid annuloplasty hands-on	25 min	<i>H. Vanermen, P. Denti, M. Taramasso</i>

Notes: .....



### Workshop 9

# Innovation room: How to develop an idea from the concept to market

**Chair:** L.K. von Segesser, E. Grube, M. Emmert, J. Zmudczynski

**Faculty:** L. Biegelsen, J. Essinger, R. Geoffrion, A. Gross,  
W. Henggeler, F. Maisano, T. Reich, R. Robb,  
J. Zmudczynski

**Workshop room:** Room A16

### Target

- Cardiologists
- Cardiac surgeons
- Interventional cardiologists
- Radiologists
- Heart failure specialists
- Cardiac Anesthesiologists

### Trainers

- |                |                      |
|----------------|----------------------|
| • L. Biegelsen | • W. Henggeler       |
| • J. Essinger  | • F. Maisano         |
| • R. Geoffrion | • T. Reich           |
| • A. Gross     | • R. Robb            |
| • E. Grube     | • L. K. von Segesser |
| • A. Guidotti  | • J. Zmudczynski     |

### Objective

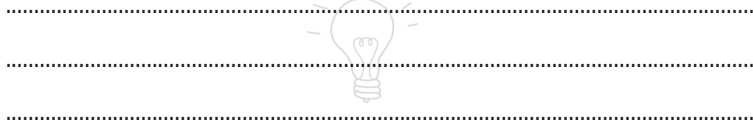
- To understand the basics of the cycle of innovation

### Topics

- Innovation: from the idea to the productIntellectual property
- Intellectual property
- Design and prototyping
- Animal models and Preclinical trial design
- Funding your idea
- Basics of market development and commercialization

Program	Duration	Trainer
<i>Chair:</i>		<i>L. K. von Segesser, E. Grube</i>
1. Inventions vs innovations: the cycle of sustainable cardiovascular innovation	10 min	<i>F. Maisano</i>
2. A real-world mitral story from Israel: Valtech from scratch to sales	10 min	<i>A. Gross</i>
3. A real-world aortic story from Switzerland: Symetis from scratch to sales	10 min	<i>J. Essinger</i>
4. Finding an Engineer who helps the kickstart (prototyping, planning)	10 min	<i>T. Reich</i>
5. How and when to protect an idea (Intellectual property)	10 min	<i>W. Henggeler</i>
6. Group activities (build your start-up )	20 min	<i>Participants</i>
7. Funding an idea: angels, banks, venture capital, strategies	20 min	<i>R. Geoffrion</i>
8. Crowdfunding your ideas: we need to think out of the box	10 min	<i>J. Zmudczynski</i>
9. The start-up I would like to buy...	10 min	<i>R. Robb</i>
10. The value of innovation: a view point from Wall street	10 min	<i>L. Biegelsen</i>
11. Panel and wrap up		<i>L. K. von Segesser, E. Grube</i>

Notes: .....



# We would like to thank all supporting industry partners:

## Workshop 1



**Abbott**



Cardiac Dimensions

**Chordart**



**ETHICON**  
PART OF THE Johnson & Johnson FAMILY OF COMPANIES

**Medtronic**



**ST. JUDE MEDICAL**

## Workshop 2

### Premium partner companies

**PHILIPS**

Healthcare

**3mensio**

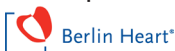
3mensio Structural Heart



### Partner companies



## Workshop 3



**MAQUET**



**BioVentrix**



**HeartWare**



**ST. JUDE MEDICAL**

## Workshop 4



**Abbott**



**ST. JUDE MEDICAL**



**Valtech**

## Workshop 5



**Abbott**



**Valtech**

## Workshop 7



**Medtronic**



**ST. JUDE MEDICAL**

## Workshop 8



**4Tech Cardio**

**Medtronic**



**ST. JUDE MEDICAL**