

CARDIAC, VASCULAR AND ENDOVASCULAR AORTIC ADVANCES

# LIVE CASE BOOK

MONDAY-TUESDAY

7-8 OCTOBER 2024

IN PERSON AND VIRTUAL

ANDAZ VIENNA AM BELVEDERE, VIENNA, AUSTRIA





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## Guide to Live Case Transmissions: CX Aortic Live 2024:

During **CX Aortic Live 2024**, 19 live cases are scheduled to be performed and transmitted to the auditorium from 7 live case centres. This guide provides an overview of the live case schedule and serves as a practical guide to the individual procedures that will be showcased

Given the dynamic nature of live cases, we kindly ask for your understanding that, due to the clinical needs of the patients, changes to the schedule may occur. The anticipated procedural steps outlined in this guide are intended to serve as a reference, but the operator may adjust the procedural strategy and choice of materials at their discretion to ensure the best clinical outcome.

We extend our deepest gratitude to our live case centres and live case operators for their invaluable contributions to this educational programme.



# TAVI: ADVANCES IN TRANSCATHETER HEART VALVE (THV) TECHNOLOGY

Live from Hamburg | Session 1 | 08:30-13:00

Speaker: Andreas Schäfer, Hamburg, Germany Patient data: Male, 80y, severe aortic valve stenosis Andreas Schäfer, Niklas Schofer Operators: Clinical data: Severe aortic valve stenosis Important items: No surgical candidate due to age, frailty and comorbidity burden **Procedural steps:** 1. Percutaneous access, right femoral artery, ProStyle 2. Secondary access: right radial artery 3. Crossing of the native aortic valve and advancement of guidewire into the left ventricle 4. Implantation of a supra-annular self-expandable transcatheter heart valve with commisural alignment and vessel closure Materials: 1. ProStyle, Abbott 2. Sentrant Introducer Sheath. Medtronic

3. Evolut FX transcatheter heart valve system, Medtronic



# PV AUTOGRAFT FOR AV AND HOMOGRAFT IN PULMONARY POSITION ACC. ROSS

Live from Hamburg | Session 1 | 08:30-13:00

Speaker:	Michael Hübler, Hamburg, Germany
Patient data:	Male, 29y
Operators:	Michael Hübler
Clinical data:	Bicuspid aortic valve severe regurgitation and moderate stenosis, systolic left ventricular function preserved
Important items:	If intraoperative findings will be more favourable, strategy may be switched to aortic valve repair
Procedural steps:	<ol> <li>Median sternotomy</li> <li>Initiate and commence cardiopulmonary bypass</li> <li>Harvest pulmonary autograft</li> <li>Replace diseased aortic valve with pulmonary autograft. Reconstruct right ventricular outflow tract (RVOT) with decellularised homograft</li> </ol>
Materials:	Decellularised homograft, Corlife



## DAVID ROOT REPAIR IN BICUSPID AORTIC VALVE

Live from Leipzig | Session 1 | 08:30-13:00

Speaker: Michael A. Borger, Leipzig, Germany Patient data: Male, 25y Operators: Michael A. Borger Clinical data: BAV with severe AI, ascending aortic aneurysm Reduced LVEF (35%) due to AI Important items: Procedural steps: 1. CPB and cardioplegic arrest 2. Resection of ascending aorta aneurysm 3. Reimplantation of BAV in prosthesis 4. Confirmation of aortic valve competency Materials: Gelweave graft, Terumo Aortic



# VALVE SPARING AORTIC ROOT REPLACEMENT (VSRR): REIMPLANTATION

Live from Bologna | Session 1 | 08:30-13:00

Speaker:	Davide Pacini, Bologna, Italy
Patient data:	Male, 4y
Operators:	Davide Pacini, Giacomo Murana
Clinical data:	Encephalopathy with ectasia of the cerebral vessels
Important items:	Connective tissue disease, chest deformity (pectus excavatum)
	Echo: tricuspid aortic valve, mild aortic regurgitation, normal LVEF
	Angio-CT: aortic root 46mm, ascending aorta 52mm, descending aorta 25mm
	CT-coronary angiogram: negative for coronary lesions
Procedural steps:	<ol> <li>Median sternotomy</li> <li>CPB institution</li> <li>Deep aortic root isolation</li> <li>Aortic valve inspection</li> <li>Valve sparing root reimplantation inside the Valsalva conduit</li> </ol>
Materials:	Gelweave Valsalva graft, Terumo Aortic



Live Case 5

## TAVI FOR AORTIC REGURGITATION

Live from Hamburg | Session 1 | 08:30-13:00

Speaker: Andreas Schäfer, Hamburg, Germany

Patient data: Female, 84y

Operators: Andreas Schäfer, Niklas Schofer

Clinical data: Severe aortic regurgitation with undilated aortic root

Important items: No surgical candidate due to high age, frailty, severe mitral annular

calcification

**Procedural steps:** 1. Percutaneous access, right femoral artery, premeasurement for

MANTA

2. Secondary access: right radial artery

3. Crossing of the native aortic valve and advancement of guidewire into

the left ventricle

4. Implantation of a supra-annular self-expandable transcatheter heart

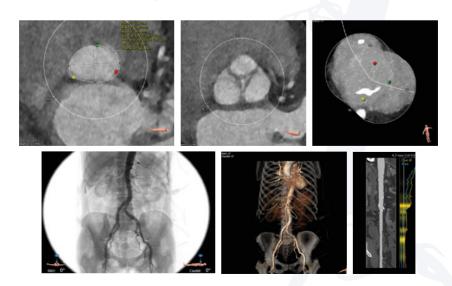
valve and vessel closure

Materials: 1. MANTA Vascular Closure Device, Teleflex

2. iSLEEVE sheath 14Fr., Boston Scientific

3. ACURATE neo2 aortic valve system, Boston Scientific

4. SAFARI guidewire, Boston Scientific





## **BEVAR WITH INNER/OUTER BRANCHES**

Live from Beijing | Session 2 | 14:00-18:30

Speaker:	Wei Guo, Beijing, China
Patient data:	Male, 69y
Operators:	Wei Guo, Hongpeng Zhang, Dan Ron
Clinical data:	Abdominal pain for three days, thoracoabdominal aortic aneurysm and aortic arch aneurysm detected by CTA
Important items:	Hypertension for 30 years, CTA: Thoracoabdominal aortic aneurysm with agulated decending aorta, aortic arch aneurysm, maximum aortic diameter: 72mm
Procedural steps:	<ol> <li>Percutaneous L and R femoral access, 12Fr sheath</li> <li>Mainbody introduction, CA and SMA recontruction with 2 inner branches</li> <li>RAs recontruction with 2 outer branches; mainbody deployment</li> <li>EVAR stentgraft and IBD for left internal iliac artery</li> </ol>
Materials:	<ol> <li>Perclose Proglide, Abbott</li> <li>SilverFlowPV bridging covered stents, Lifetech Scientific</li> <li>G-Branch stentgraft, Lifetech Scientific</li> <li>G-iliac stentgraft, Lifetech Scientific</li> </ol>







## **CMD BEVAR WITH 5 BRANCHES**

Live from Hamburg | Session 2 | 14:00-18:30

**Speaker:** Giuseppe Panuccio, *Hamburg*, *Germany* 

Patient data: Male, 78y

Operators: Giuseppe Panuccio, Jose Ignacio Torrealba

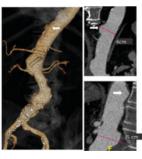
Clinical data: Pseudoaneurysm descending thoracic aorta 4cm, Type V TAAA

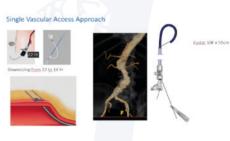
5cm, Infrarenal AAA 3.9cm

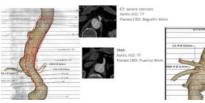
**Important items:** 4mm accessory left artery, upward facing bilateral renal arteries

#### **Procedural steps & Materials:**

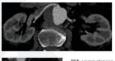
- Right percutaneous access with Prostar (Abbott) 5Fr access left femoral
- 2. Fusion with VesselNavigator (Philips)
- 3. CMD 5branched EVAR deployment
- Introduction of a 14Fr x 45mm Cook sheath and inside a 10Fr x 55mm Fustar Steerable Sheath (Lifetech Scientific) with a 0,014 through-and-through wire.
- Sequential catheterisation and bridging stent deployment of RRA (6mm VIABAHN, Gore), upper and lower LRA (5mm VIABAHN, Gore), SMA (9mm Fluency, Bard) and CT (8mm Advanta V12 balloon, Getinge)















## **BEVAR WITH INNER BRANCHES**

Live from Brescia | Session 2 | 14:00-18:30

Speaker: Luca Bertoglio, Brescia, Italy

Patient data: Male, 82y

Operators: Luca Bertoglio, Andrea Melloni, Martina Cambiaghi

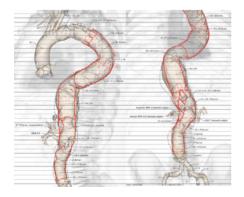
Clinical data: Type III thoracoabdominal aneurysm

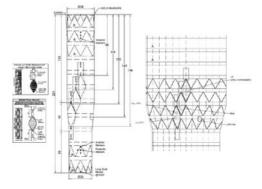
Important items: Previous infrarenal repair, stage III chronic renal failure

#### **Procedural steps & Materials:**

- 1. Bilateral percutaneous femorale access (Proglide Abbott): Right side for the F/ BEVAR graft, left side for bridging the renals
- Graft (Cook Medical Custom Made) partial deployment, catheterisation of the left renal fenestration and the lower bidirectional branch
- 3. Graft opening and ballooning of the proximal and distal neck
- 4. Catheterisation with a right transferoral access with steerable sheath (Lifetech Scientific) of the upper bidirectional renal branch
- 5. Bridging of the two right renal arteries with Gore VIABAHN 0.018
- 6. Catheterisation with the steerable sheath of the superior mesenteric artery and celiac trunk and bridging with Gore VIABAHN VBX stents
- 7. Bridging of the left renal fenestration with Bentley BeGraft peripheral PLUS stents

Other Materials: Hybrid room Siemens with CO2 injector Angiodroid







## INFRARENAL TUBEGRAFT TO CREATE A LANDING ZONE BEFORE BEVAR IN A MARFAN PATIENT

Live from Hamburg | Session 2 | 14:00-18:30

 Speaker:
 Sebastian Debus, Hamburg, Germany

 Patient data:
 Male, 57y

 Operators:
 Sebastian Debus, Mark Preuss

 Clinical data:
 TAAA post TAAD, visceral aorta 5.5cm in diameter

 Important items:
 Marfan Syndrome, 1988 TAAD: Aortic valve and ascending replacement, two re-replacements (94'-97'), 2023: TBAD: Frozen elephant trunk, August 2024: TEVAR and candy plug in false lumen due to rapid expansion

 Procedural steps:
 1. Median Laparotomy

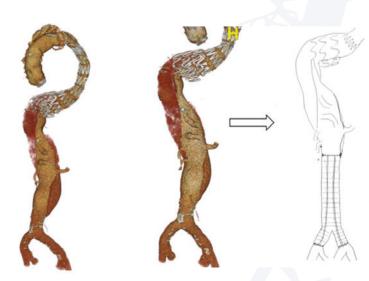
 2. Dissection and control of aorta and both common iliac artery

3. Proximal and distal clamping and opening of aneurysm

4. Sewing proximal of a 24mm Dacron graft, obliterating the distal false

lumen

Materials: Closure of retroperitoneum and aponeurosis and finally skin





# TEVAR AND FALSE LUMEN ENDOGRAFT IN TYPE B AORTIC DISSECTION

Live from Munich | Session 2 | 14:00-18:30

Speaker:	Nikolaos Tsilimparis, <i>Munich, Germany</i>
Patient data:	Male, 56y
Operators:	Jan Stana, Nikolaos Konstantinou
Clinical data:	Stanford type B aortic dissection with a thoracic aortic aneurysm of 7.5cm, managed with TEVAR (ZTA 34-30-209) 1 month earlier. Status post left carotid-subclavian bypass 2 months earlier
Important items:	CVRF: arterial hypertension, type 2 diabetes mellitus, right adrenal incidentaloma. Currently on aspirin
Procedural steps:	<ol> <li>Percutanous femoral access with 2 ProGlides on the right and 5F sheath on the left</li> <li>Angiography of the true lumen, eventually IVUS</li> <li>Cannulation of the false lumen at the iliac or visceral segment</li> <li>False lumen angiography and stiff wire in the false lumen</li> <li>Implantation of the false lumen occluder</li> <li>Final angiography</li> <li>Access closure</li> </ol>
Materials:	Perclose ProGlides, Abbott     Candy plug device, 38mm



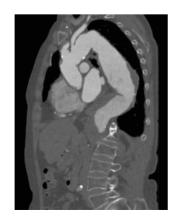




# FROZEN ELEPHANT TRUNK: THE HAMBURG APPROACH

Live from Hamburg | Session 3 | 08:00-13:00

Speaker:	Christian Detter, Hamburg, Germany
Patient data:	Female, 76y
Operators:	Christian Detter, Till Demal
Clinical data:	Aortic arch (51mm) and descending aortic (56mm) aneurysm after ascending and hemiarch replacement for aortic aneurysm 2021
Important items:	Ascending and hemiarch replacement 2021, seropositive rheumatoid arteritis, giant cell arteritis, chronic obstructive pulmonary disease
Procedural steps:	<ol> <li>Cannulation of the LSA via 8mm Dacron graft</li> <li>Redo sternotomy, preparation of the heart and aorta; cannulation of the right atrium; start of ECC and cooling to 25°C</li> <li>Circulatory arrest; bilateral antegrade cerebral perfusion; distal FET anastomosis in zone 2; restart ECC using FET sidearm cannulation</li> <li>Anastomosis of the 2nd and 1st branch of the FET prosthesis to the left common carotid and innominate artery</li> <li>Proximal anastomosis between the FET and the ascending prosthesis</li> <li>During reperfusion creation of a retroclavicular tunnel, passage of the 8mm Dacron prosthesis and anastomosis to the third FET branch</li> </ol>
Materials:	Thoraflex Hybrid stent graft prosthesis 8mm, Terumo Aortic, Gelweave prosthesis, Terumo Aortic







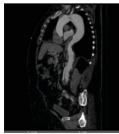
# FROZEN ELEPHANT TRUNK: THE MUNICH APPROACH

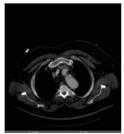
Live from Munich | Session 3 | 08:00-13:00

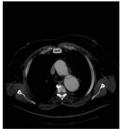
Speaker:	Maximilian Pichlmaier, Munich, Germany
Patient data:	Male, 49y
Operators:	Maximilian Pichlmaier and Sven Peterß
Clinical data:	Chronic non-A-non-B aortic dissection with enlarging post- dissection aneurysm in the proximal descending aorta
Important items:	Coronary artery disease, NIDDM, BMI 40, arterial hypertension, chronic renal failure, hypercholesterinaemia
Procedural steps:	<ol> <li>Median sternotomy, connection of the HLM, cooling to 26°C.</li> <li>Supracomissural aortic replacement with a regular tube graft</li> <li>Circulatory arrest, arch replacement in zone 2 with a FET, SAVSTEB to A.subclavia and left A.c.c., rewarming</li> <li>Graft-to-graft anastomosis, reperfusion, echo</li> </ol>
Materials:	<ol> <li>Thoraflex Hybrid, Terumo Aortic</li> <li>Gore VIABAHNs 5cm (9, 11 or 13mm)</li> <li>Straight tube graft, Terumo Aortic</li> </ol>















## CMD 3 BRANCHES RETROGRADE TEVAR

Live from Hamburg | Session 3 | 08:00-13:00

**Speaker:** Giuseppe Panuccio, *Hamburg*, *Germany* 

Patient data: Male, 78y

**Operators:** Giuseppe Panuccio, Jose Ignacio Torrealba

Clinical data: 6.3cm Type I TAAA, 5cm Aortic arch

Important items: Root and ascending aortic repair 2009, CHF EF30%, DM2, HTN,

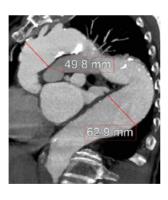
smoker. Challenges: Short proximal landing zone in previous ascending

graft (20mm inner curvature)

#### Procedural steps & Materials:

- Right percutaneous access and Prostar (Abbott) preclosure, left femoral 5Fr access, eventually RCCA cutdown
- 2. Fusion with Vessel Navigator (Philips)
- CMD 3 branched antegrade TEVAR deployment, sequential catheterisation and bridging of the IA (26mm limb, Cook), RCAA (10mm VIABAHN, Gore), LCCA (13mm VIABAHN, Gore)









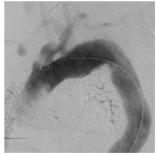
# TYPE IA ENDOLEAK TREATMENT AFTER ENDOVASCULAR ARCH REPAIR IN ZONE 2

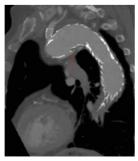
Live from Heidelberg | Session 3 | 08:00-13:00

Speaker:	Dittmar Böckler, Heidelberg, Germany
Patient data:	Male, 82y
Operators:	Dittmar Böckler, Andreas Petres, Johannes Hatzl
Clinical data:	Off the shelf single branch stent grafting in zone 2 March 2024 for symptomatic distal arch aneurysm zone 3 57mm diameter, secondary type la Endoleak after four months
Important items:	Cardiovascular risk factors: aHT, coronary artery heart disease, diabetes type 2, dyslipidemia, BMI 26, multiple previous abdominal surgeries for necrotising pancreatitis, unfit for open repair
Present status and	l root cause analysis:
	Symptomatic endoleak detection in routine follow-up. Disease progression and proximal attachment zone dilatation
Imaging:	Primary intra and postoperative imaging and recent follow-up CT scan













# ENDOVASCULAR REPAIR OF AN AORTIC ARCH ANEURYSM VIA A CUSTOM-MADE DEVICE

Live from Munich | Session 3 | 08:00-13:00

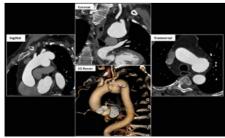
Speaker:	Nikolaos Tsilimparis, <i>Munich, Germany</i>
Patient data:	Male, 65y
Operators:	Nikolaos Tsilimparis, Jan Stana
Clinical data:	Asymptomatic aortic arch aneurysm
Important items:	Coronary artery disease, post status open aortic repair of an infrarenal AA, CVRF: active nicotine abuse (40py), art. hypertension, hyperlipidaemia active, last CT-A: progredient growth of a known aortic arch pseudoaneurysm

#### Procedural steps:

- 1. Percutaneous access with 2 ProGlides, right femoral
- 2. Cut-down right carotid artery and insertion of 7Fr-30cm sheath
- 3. Percutaneous 5F imaging catheter, left femoral
- 4. Lundquist wire into the ascending aorta, right femoral
- 5. Insertion of the preloaded fen-branched endograft
- Snaring of the preloaded wire creating a femoro-carotid through and through wire
- 7. Deployment of the endograft and tension of the through-and-through wire and MuVIT manoeuver
- 8. Insertion of sheath in the fenestration and release of the through-and-through wire
- 9. Transfemoral catheterisation of the retrograde branch for the LSA
- 10. Stenting and flaring of LCA and LSA
- 11. Final angiography
- 12. Access closure via ProGlides

#### Materials:

- 1. Perclose ProGlide. Abbott
- Custom-made device (38-32mm): Reinforced scallop (30x14mm) for brachiocephalic trunk, reinforced fenestration (8mm) for LCCA, internal retrograde branch (10mm) for LSA
- 3. Bridging stents: For LCCA: BeGraft (Bentley) peripheral 8mm, for LSA: BeGraft peripheral PLUS 10mm and/or VIABAHN 13/50, Gore









#### OPEN REPAIR OF AAA IN MARFAN SYNDROME

Live from Heidelberg | Session 4 | 14:00-17:00

Speaker: Dittmar Böckler, Heidelberg, Germany

Patient data: Male, 38y

Operators: Dittmar Böckler, Moritz Bischoff

Clinical data: Progressive infrarenal dissection (maximum diameter: 61mm)

Important items: Hx. of open aortic arch repair in 2021, atrial fibrillation, Morbus Addison

Procedural steps: 1. Laparatomy

2. Eventeration

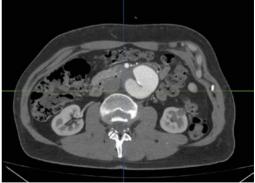
3. Proximal/distal aortic clamping

4. Resection of the dissection membrane and infrarenal aortic

reconstruction

**Materials:** Bifurcated polyester prosthesis (Gelsoft Plus, Terumo Aortic)







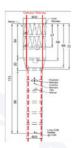
# 4-VESSEL PRELOADED RENAL FENESTRATED EVAR WITH BIPORT MODIFIED IPSILATERAL HANDLE

Live from Munich | Session 4 | 14:00-17:00

Speaker:	Nikolaos Tsilimparis, <i>Munich, Germany</i>
Patient data:	Male, 77y
Operators:	Nikolaos Tsilimparis, Jan Stana
Clinical data:	Progressive juxtarenal abdominal aortic aneurysm (AAA) of 56mm
Important items:	CRVF: Hyperlipidemia, Hypertension, Nicotine abuse. Status post left-sided stroke due to occlusion of the internal carotid artery in 1997. Status post open surgical inguinal hernia repair 2016. Status post partial stomach resection in 1983. Currently on Aspirin (ASA), Rosuvastatin, and Carbamazepine. Last CT-A: progredient growth of a known juxtarenal abdominal aortic aneurysm to a current max. diameter of 56mm
Procedural steps:	1. Percutanous access with 2 ProGlides, right femoral 2. Lundquist wire in to the ascending aorta 3. Imaging catheter from the contralateral side 4. Partial deployment of the device under serial angiographies and Fusion 5. Insertion of a 6Fr 90cm sheath in the biport handle over an .018" wire 6. Side puncture of the sheath and cannulation of the renal artery 7. Exchange for a stiff wire 8. Insert sheath in target vessel 9. Same procedure for contralateral renal 10. Catheterisation of SMA and celiac from contralateral side 11. Complete endograft release and stenting of renals and SMA, celiac 12. Implantation of the bifurcated endograft 13. Final angiography 14. Access closure
Materials:	CMD Fenestrated Zenith Thoracoabdominal Graft, Cook Medical, Zenith Fenestrated Endovascular Graft (ZFEN-D-12-28-94), Cook Medical, Zenith Spiral-Z Iliac extensions, Cook Medical, BeGraft covered stent, Bentley









# RETROPERITONEAL ILIAC CONDUIT BEFORE COMPLEX AORTIC REPAIR

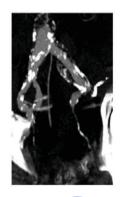
Live from Hamburg | Session 4 | 14:00-17:00

Speaker:	Sebastian Debus, Hamburg, Germany
Patient data:	Male, 69y
Operators:	Sebastian Debus, Mark Preuss
Clinical data:	Asymptomatic 6.5cm Type II TAAA, right CIA 2.5cm with abundant thrombi, occlusion R EIA
Important items:	HTN Stroke with L ICA occlusion (2009), R CEA (4 months ago), active smoker
Procedural steps:	<ol> <li>Right femoral cutdown and right retroperitoneal incision and approach with dissection of CIA, EIA and hypogastric artery</li> <li>Proximal and distal clamping</li> <li>Anastomosis with a 10mm Dacron graft with incorporation of hypogastric artery</li> <li>Termino-lateral anastomosis with right common femoral artery</li> </ol>











## TRANSARTERIAL TYPE II ENDOLEAK EMBOLISATION

Live from Hamburg | Session 4 | 14:00-17:00

**Speaker:** Giuseppe Panuccio, Hamburg, Germany

Patient data: Male, 76y

Operators: Giuseppe Panuccio, Jose Ignacio Torrealba

Clinical data: HTN, 2023: BEVAR and left IA recanalisation

Important items: Type II Endoleak from the lumbarartery and aneurysmal growth

#### **Procedural steps & Materials:**

1. Percutanous femoral access

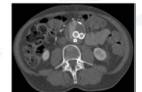
- 2. Selective catheterisation of medial circumflex femoral artery
- Navigation through the meandering artery with a PROGREAT Microcatheter, Terumo Aortic
- Embolisation of endoleak, proximal IMA with Nester Microcoils, Cook Medical







2024



Type IIb EL





Notes



# GLOBAL CARDIOVASCULAR AWARDS 2025



## 13 MARCH 2025

SHERATON GRAND PARK LANE LONDON, UNITED KINGDOM



Vascular & Endovascular
Challenges Update

## SAVE THE DATE

23-25 APRIL 2025 WEDNESDAY-FRIDAY

EXCEL, LONDON UNITED KINGDOM













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**CONTROVERSIES** 

**CHALLENGES** 

CONSENSUS