SMARTool

**Project ID:** 689068

**Funded under:** H2020-EU.3.1.5.

**Simulation Modeling of coronary ARTery disease: a tool for clinical decision support**

**From** 2016-01-01 to 2019-06-30, closed project

**Project details**

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<th>Total cost:</th>
<th>Topic(s):</th>
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<tr>
<td>EUR 5 007 858,75</td>
<td>PHC-30-2015 - Digital representation of health data to improve disease diagnosis and treatment</td>
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<th>EU contribution:</th>
<th>Funding scheme:</th>
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<tr>
<td>EUR 4 800 858,75</td>
<td>RIA - Research and Innovation action</td>
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<td>Italy</td>
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**Objective**

SMARTool aims at developing a platform based on cloud technology, for the management of patients with coronary artery disease (CAD) by standardizing and integrating heterogeneous health data, including those from key enabling technologies. The platform includes existing multiscale and multilevel ARTreat (FP7-224297) models of coronary plaque progression based on non-invasive coronary CT angiography (CCTA) and fractional flow reserve computation, refined by heterogeneous patient-specific non-imaging data (history, lifestyle, exposome, biohumoral data, genotyping) and cellular/molecular markers derivable from a microfluidic device for on-chip blood analysis. SMARTool models will be applied and validated by historical and newly acquired CCTA imaging plus non-imaging health data from the EVINCI project (FP7-222915) population.

SMARTool cloud-based platform, through Human Computer Interaction techniques, 3D visual representation and artery models, will use heterogeneous data in a standardized format as input, providing as output a CDSS - assisted by a microfluidic device as a point of care testing of inflammatory markers - for:

i) Patient specific CAD stratification - existing models, based on clinical risk factors, will be implemented by patient genotyping and phenotyping to stratify patients with non-obstructive CAD, obstructive CAD and those without CAD, ii) site specific plaque progression prediction - existing multiscale and multilevel ARTreat tools of CAD progression prediction will be refined by genotyping and phenotyping parameters and tested by baseline and follow CCTA and integrated by non-imaging patient-specific data, iii) patient-specific CAD diagnosis and treatment - life style changes, standard or high intensity medical therapy and a virtual angioplasty tool to provide the optimal stent type(s) and site(s) for appropriate deployment.

**Related information**

**Report Summaries**

Periodic Reporting for period 2 - SMARTool (Simulation Modeling of coronary ARTery disease: a tool for clinical decision support)
Coordinator

CONSIGLIO NAZIONALE DELLE RICERCHE
PIAZZALE ALDO MORO 7
00185 ROMA
Italy

EU contribution: EUR 1 200
411,25

Activity type: Research Organisations
Contact the organisation

Participants

ACADEMISCH ZIEKENHUIS LEIDEN
ALBINUSDREEF 2
2333 ZA LEIDEN
Netherlands

EU contribution: EUR 220 000

Activity type: Higher or Secondary Education Establishments
Contact the organisation

FAKULTET INZENJERSKIH NAUKA UNIVERZITETA U KRAGUJEVCU
SESTRE JANJIC 6
34000 KRAGUJEVAC
Serbia

EU contribution: EUR 319 500

Activity type: Higher or Secondary Education Establishments
Contact the organisation

IDRYMA TECHNOLOGIAS KAI EREVNAS
N PLASTIRA STR 100
70013 IRAKLEIO
Greece

EU contribution: EUR 675 000

Activity type: Research Organisations
Contact the organisation

ALACRIS THERANOSTICS GMBH
MAX PLANCK STRASSE 3
12489 BERLIN
Germany

EU contribution: EUR 811 375

Activity type: Private for-profit entities (excluding Higher or Secondary Education Establishments)
Contact the organisation
TURUN YLIOPISTO
YLIOPISTONMAKI
20014 Turku
Finland
See on map

**Activity type:** Higher or Secondary Education Establishments

Contact the organisation

EXPRIVIA SPA
VIA ADRIANO OLIVETTI 11
70056 MOLFETTA
Italy
See on map

**Activity type:** Private for-profit entities (excluding Higher or Secondary Education Establishments)

Contact the organisation

EXPRIVIA HEALTHCARE IT SRL[参与已结束]
PIAZZA GIANNANTONIO MANCI 17
38123 TRENTO
Italy
See on map

**Activity type:** Private for-profit entities (excluding Higher or Secondary Education Establishments)

Contact the organisation

UNIVERSITAT ZURICH
RAMISTRASSE 71
8006 ZURICH
Switzerland
See on map

**Activity type:** Higher or Secondary Education Establishments

Contact the organisation

FONDAZIONE TOSCANA GABRIELE MONASTERIO PER LA RICERCA MEDICA E DI SANITA
PUBBLICA
VIA TRIESTE 41
56126 PISA
Italy
See on map

**Activity type:** Research Organisations

Contact the organisation

EU contribution: EUR 208 073,75
EU contribution: EUR 318 952,50
EU contribution: EUR 0
EU contribution: EUR 343 476,25
EU contribution: EUR 0
MICRONIT MICROTECHNOLOGIES BV
COLOSSEUM 15
7521 PV ENSCHEDE
Netherlands
EU contribution: EUR 372 695

Activity type: Private for-profit entities (excluding Higher or Secondary Education Establishments)
Contact the organisation

BIOTRONICS 3D LIMITED
5 GREENWICH VIEW PLACE CITY REACH THIRD FLOOR SUITE D
E14 9NN LONDON
United Kingdom
EU contribution: EUR 331 375

Activity type: Private for-profit entities (excluding Higher or Secondary Education Establishments)
Contact the organisation

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