

Dissemination Progress report

deliverable D1.3

THROMBUS, A quantitative model of thrombosis in intracranial aneurysms

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- Project coordinator: CNRS

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- Duration: 36 months

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PU = Public

X

Partners involved

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Contributors involved in the reported work (from same organisation or others)	All Partners	

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Introduction

The objective of THROMBUS is the theoretical understanding of the complex thrombosis process in intracranial aneurysms, its cause in terms of the local flow properties and the biology of the wall and of the blood. This knowledge will then be exploited to implement validated multiscale numerical simulations of Thrombosis, and to dedicate those simulations for the characterisation of optimal patient specific stents. The associated technological aim of the project is to deliver software with an interactive end-user interface, providing a virtual simulation of the thrombosis leading to the optimal stent for a specific patient's aneurysm.

The realisation of the objective will lead to:

1. Providing stent manufacturers with a reliable numerical model of intra-aneurismal thrombosis mechanisms based on biological experiments, using patient specific medical images coupled with recorded parameters.
2. Providing clinicians with a virtual tool to help in choosing between different characteristics of stents based on relevant criteria issued from image processing and multiscale numerical simulation.
3. Providing clinicians and scientists with an interactive end-user tool coupled to a medical collaborative system.

Expected Results & Impacts:

A new 4D aneurysm and thrombosis model developed by the THROMBUS project will have a direct impact on more predictive, effective and safer healthcare. It will allow the radiologists and surgeons to take faster and more accurate decisions. Therefore the foreseen outcomes of the project will lead to reinforced leadership of European industry and strengthened multidisciplinary research excellence in supporting innovative medical care.

As the results expected will have a wide impact, it is important to communicate about the project since the beginning. The dissemination strategy is done with a view to optimising the value of the project and strengthening its impact in order to continuing to build upon the project after its lifetime. The communication's aim is to inform and involve the general public as well as the specific clinical and scientific targets potentially interested in the Project.

This document is the deliverable D1.3, the Dissemination Progress Report (an update of the deliverable D1.3 - Plan for dissemination and exploitation established at the beginning of the project)

and contains the report of dissemination activities already done by the Consortium during the first year.

Dissemination strategy

Dissemination is contractual in THROMBUS project as it is mentioned in the DoW: “Thrombus consortium has foreseen to devote a special budget (about 30 kEuros [distributed between partners]) for dissemination activities: It will comprise promotional material (website, leaflets, etc), for organization of the final conference and advertorials in magazines and Peer Revived Journals (such as e.g. the parliament magazine, or more targeted to e.g. clinicians or bioengineers). Finally, all the partners will devote about 2 PM (not founded) during the life of the project for the dissemination activities on their local institutional level. Another 30 kEuros (shared between CNRS, UNIGE and EPFL) will be added to the travel budget in order to cover the participation of the project representative in one FP7- ICT consensus meeting per year, and in order to cover the costs of invited external experts and key note speakers for the final conference.”

Dissemination has taken place from the beginning of THROMBUS project and will intensify as results will become available. The dissemination will be performed by the Consortium as a whole. The dissemination strategy is flexible in order to take into account the development of the project and the current dissemination plan aims to present our action in broad outline. The flexibility of the strategy allows the addition of any further opportunities of communication about the project and the Dissemination plan is updated yearly.

Dissemination plan

Who?

The Project use a dissemination plan adapted to each category of its target audience. The GB (Governing Board) has established at the beginning of the Project the dissemination strategic plan and addressed internal (belonging to the project) and external target groups by specific instruments. The list of target groups will be discussed and regularly updated.

The following target groups have been identified:

- Universities/Research Institutions/Academies working in topics related to the Action: THROMBUS project involves research in various fields (medical imaging, biomechanics, numerical

simulation, computational bioengineering, images processing and software application). The consortium will disseminate the developments and results of the project to the research community through THROMBUS scientific partners. The participation to international conferences and the publication of scientific papers will be useful to discuss about THROMBUS results and area of research. A first contact has been taken with a research team in ETHZ of Zürich to exchange point of view on the modelling of the thrombosis.

- Clinical community: Neuroradiologists and Neurosurgeons are direct actors as user of THROMBUS achievements. It is essential to communicate THROMBUS developments and accomplishments to clinicians. Today in addition to the CHUV and HCL, several collaborations with hospitals are being initiated: HUG (Hôpital Universitaire de Genève) of Geneva, CHU of Montpellier, Hirslanden Hospital in Zürich and CHU of Besançon:

For example, Covalia (Partner 5) is working with medical partners, such as Neurology Department of CHU of Besançon (France) for the evolution of the Covotem telemedicine platform since 2007. We have initiated a collaboration with the Neuroradiology team of this CHU in November 2011 in order to communicate on the Thrombus project with neuroradiologists of Franche-Comté (France) and to create a collaboration between them and the other Thrombus partners.

- Industries in related-fields to the project: The stents manufacturers' community is directly concerned and involved in THROMBUS project and represents a very important stakeholder. During the first six months of THROMBUS, meetings were held with various manufacturers of stents, collaborations and confidentiality agreements are being negotiated.

- Other European projects (FP7 projects, COST, INTERREG...)

- Opinion formers, European-level and regional-level Research Policy decision-makers

- Media: scientific and non-scientific press, digital media (for example YouTube is a video-sharing website using today by scientific community) and TV

- Early stage researchers (PhD students, young researchers working in the field of the Project)

- General public: The general public is the potential beneficiary of THROMBUS project and should get information about scientific progresses and results within THROMBUS. By informing the general public the consortium will highlight that the European Community is supporting quality medical projects in European research. At this step, the dissemination to the general public in our project is performed via the academic institutions and through non-scientific publications.

What?

The dissemination plan is designed to achieve a maximum transfer of new knowledge. To maximise the dissemination of the results and progress of this Project several distinct routes are used:

A dedicated interactive website with two levels of access

The World Wide Web has become a major information channel and it is now indispensable for producers of information – particularly in the scientific and technical domains – to publish on the web. Since the first days of the consortium a website has been started. In order to develop an efficient communicating tool, the services of a professional web interface designer have been used. The creation of the website has been entrusted to the local company Kinesphere and THROMBUS website is available at <http://www.thrombus-vph.eu>, since 17th of May 2011.

An e-mail address has also been set up to enable visitors to contact THROMBUS management team.


The website is a key tool to provide information about the project and news of its activities and results, with a clear and easy-to-navigate interface. But the website is also a working tool with a private area allowing THROMBUS members to share confidential data in order to improve communication between consortium partners. In consequence, it includes a private area, accessible to the Project partners only and a public area.

(a) Public accessible level


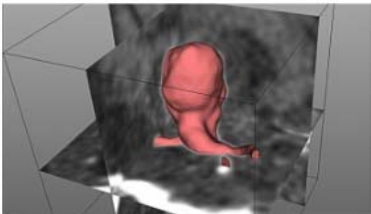

The public area allows broad dissemination of the Project outcomes in form of common scientific publication database and information on past and upcoming events. This contains information about the management structure, contact points and activities of the Projects including conferences, workshops, symposia, list of potential host groups for technical visits. Links to publications and articles in scientific and technical journals, proceedings, job opportunities, project opportunities, PhD and MSc studentships will also be available.

(b) Password-protected level

This access-level allows private information exchange about available facilities and work in progress for members in Work Groups only. It contains information about GB meetings, and general meetings with all partners, scientific reports, non-technical interim and annual reports, financial reports, working papers, guidelines and manuals.



[Home](#)
[Our Project](#)
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[Agenda](#)
[Documents Manager](#)
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AGENDA

- 18/01/2012
WP4 Meeting
- 23/01/2012
Work Package Leaders conference call
- 01/02/2012
Wall motion quantification: progress report - deliverable D3.2
- 01/02/2012
Dissemination Progress Report 1 - deliverable D1.3
- 01/02/2012
Aneurysm segmentation algorithm: progress report - deliverable D3.1

USER MENU

- My account
- Gallery List
- Mass Mailing
- Create content
- Wiki
- Log out

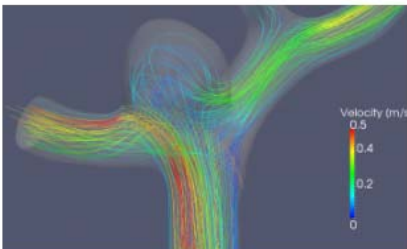
Scientific Coordinator
Project Leader
Guy Courbebaisse
CNRS - CREATIS

A quantitative model of thrombosis in intracranial aneurysms

A challenging project for our European scientific network


View Edit Revisions

Headlines



ICT Scientific project dedicated to health
THROMBUS: A quantitative model of thrombosis in intracranial aneurysms
Rupture risk of intracranial aneurysms (IA) has been studied at length. However, very little is known about the healing mechanism, namely the formation of a clot inside the cavity after insertion of a stent. The multiscale interaction between biological and hemodynamic processes is the central ingredient of this proposal.

[Read more](#)




THROMBUS Plenary Meeting – month 6
THROMBUS Plenary Meeting at month 6 was held in the nice place of the Ecole Polytechnique Federale de Lausanne (EPFL), Lausanne, Switzerland on 4th-5th October 2010. Thanks to Jean-Philippe Thiran for the perfect organization of the meeting, it has been a very fruitful and friendly event.

[Read more](#)

News

Thrombus building on Biomed Town
THROMBUS project participates to the Biomed Town Portal.

[Read more](#)



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Contact us
00 33 (0)4 72 43 75 49 - contact@thrombus-vph.eu
Website created by Kinesphère | Powered by Drupal

Newsletter

This project is funded by






Figure 1 - THROMBUS website home page

The website is maintained by the EPM (Frederique Foulon) and supported by the coordinator and the GB of THROMBUS.

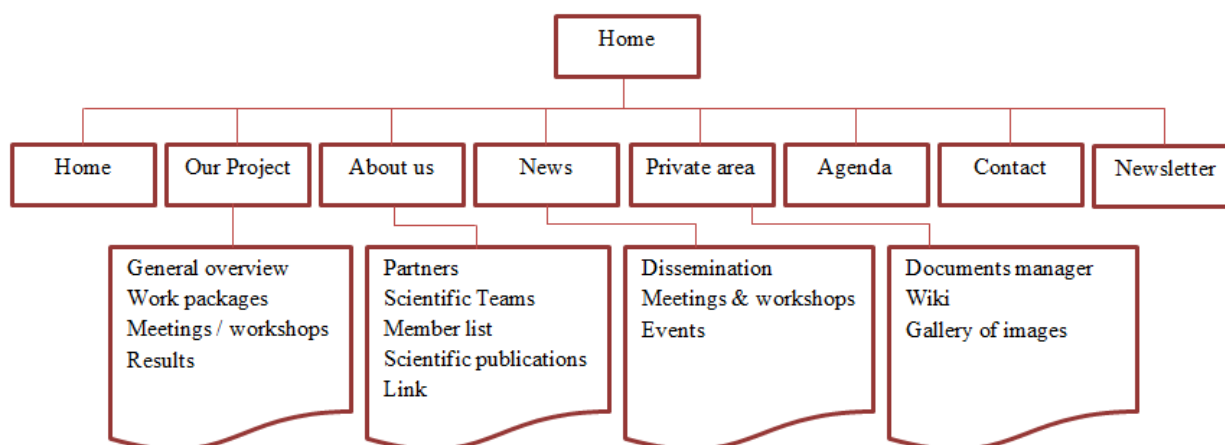


Figure 2 - THROMBUS website structure

The website is updated on a regular basis and currently contains a description of the project, general information about the objectives and the work to be performed within THROMBUS, as well as a presentation of THROMBUS partners and contact details for the project Coordinator.

Dissemination actions that have already been performed and meetings organized have also been published on the website. Information on progress will be updated throughout the project.

The website will be maintained after the lifetime of the project in order to ensure the sustainability of the project and to enable researches continuing their work on the subject with an interactive communication tool. We expect that this project will open the door to a new collaborative community.

Logo

In order to develop a corporate identity as well as to provide an efficient communication tool to support dissemination action, it was important to define a strong and identifiable logo for THROMBUS project. To maximise its impact, the services of a professional designer have been used and the creation of the logo has been entrusted to the local company Kinesphere.

The logo has been voted and selected among several propositions; the following logo was chosen:



Figure 3- THROMBUS logo

All partners agreed to use it, representing the project in all official documents and presentations of the project as well as on the website and elsewhere as necessary.

Promotional material

In order to advertise THROMBUS project, ballpoint pens and USB keys has been ordered with the logo and the address of the website printed on the object.

Dissemination mailing list

A dissemination mailing list has been established gathering those who have expressed interest in the project (website visitors subscribing to the newsletters, regular collaborators, colleagues, supporting researchers and institutions and legal representatives) but also private and public institutions such as:

- Balt, Boston Scientific and other stent societies
- Hirslanden Private Hospital in Zurich, Switzerland, Clínica Sagrada Familia in Buenos Aires, Argentine, University hospital of Geneva Switzerland (HUG) and others private and university hospitals
- medical doctors members of ESMINT (European Society for Minimally Invasive Neurological Therapies)

The dissemination mailing list is an open list, updated regularly.

E-newsletter every 6 months

An e-newsletter describing in detail all actions undertaken by the project and indicating relevant events worth of interest will be issued every 6 months and distributed at the same time through the THROMBUS dissemination mailing list and through the newsletter via the website. This action will allow reaching the closest scientific community but also institutions and private companies of interest for the project.

- At month 6 an article about THROMBUS project has been published in the 6th VPH NoE newsletter in July 2011 in order to present THROMBUS project to the scientific community.
- At month 12 a THROMBUS newsletter (also available on the website) has been sent to the dissemination mailing list, presenting the first year of THROMBUS project.

Cooperation with all kind of media

The visibility of our project depends on how we promote it. Initial dissemination actions need to be taken by all partners. A general action of communication is done at the project level by the coordinator and the management team, but THROMBUS members also have to address people in

their national or local settings and make links both locally and nationally (for details see Appendix 1).

Communication to general public

- THROMBUS coordinator has been contacted on 04/11/2011 by secondary school students of the La Martinière School in Lyon (France) to present THROMBUS project and to explain how to heal an aneurysm.
- THROMBUS management team will participate in March 2012 to the Brain Week 2012, a national event in France, in order to present THROMBUS project to the general public.

Communication to the scientific community

- Participation to conferences, workshops or scientific meetings

Lectures are an important and useful method to spread the THROMBUS activities to research and medical community. There are several ways to give a lecture: either during an event organized by THROMBUS consortium or at conferences, workshops or seminars initiated by other organizers (for details see Appendix 2).

- Scientific articles, reviews and other publications

Publishing is one of the most important actions related to research activity within THROMBUS project. It will allow the consortium not only to disseminate the results, but also to get a fast and competent feed-back from the targeted community. Publishing and presenting the results of the project in the most well-known conferences and relevant journals will give THROMBUS partners the opportunity to reach the other researchers focusing on the same or similar problems. (for details see Appendix 2).

- THROMBUS project participates to the Biomed Town Portal

[Biomed Town](http://www.biomedtown.org) is the home of many different entities with the interest in biomedical research in common. With the participation to that Portal, THOMBUS is involved in the biomedical community. Thrombus building is available at https://www.biomedtown.org/biomed_town/thrombus

Industrial contacts

Several contacts have been taken with industries in the field of THROMBUS project:

- BALT extrusion Company: Linda NICOLINI / Director of market Development

Subject: modelling of stent in stent or telescopic systems.

- EV3 France Company: Christian Outrilla / Sale Territory Manager - South East Neurovascular Division

Subject: Stents dedicated to in vitro experiments.

- Oxford Wave Research Ltd : Dr Anil Alexander / Research Director

Subject: End User interface for the pipeline of THROMBUS from IPAD system

- ANSYS France Company: Michel Rochette / Director of Research

Subject: Numerical simulation of Flow diverters

- ITGI Medical Ltd: Matthew Lewis / VP - Medical Affairs

Subject: High quality heterologous tissue covered stents for Neurovascular interventions

International collaborations

- Collaboration has been initiated with Juan Carlos Briceño Director of the Blood Substitutes Laboratory, University of Los Andes, Bogotá, Colombia. The cooperation has been reinforced with the recruitment in THROMBUS project for one year Post Doc of Carolina Vallecilla.
- Collaboration is beginning with the Department of Materials Science and Engineering, Harvard-MIT Biomedical Engineering Center, Edelman Laboratory / Garcia-Cardena Laboratory (Harvard Medical School) and a first meeting has been organized the 13/01/2012: in CNRS – CREATIS laboratory - Guy Courbebaisse (CNRS – CREATIS) and Alexis Turjman (MIT - Edelman Laboratory)

Links with others FP7 projects or actions, projects with proximity and/or complementarily objectives

Networking is necessary and efficient to promote a project. Thus, we aim to set up collaborations with other projects with proximity and/or complementarily objectives; this will be fruitful for both projects.

- MAPPER project (www.mapper-project.eu) dedicated to a multiscale modelling methodology, partner 2 - UNIGE
- RT3S project (<http://www.rt3s.eu>) dedicated to real time simulation for safer vascular stenting, partner 1 CNRS – CREATIS.

Visits to partners' laboratories and companies.

One of the key of the success of THROMBUS project is the cohesion of the consortium and the strong implication of each member. This will be strengthened by working visits of project's participants amongst teams (for details see Appendix 3).

Active involvement with the European VPH community

THROMBUS project is involved in the European VPH community via the VPH Network of Excellence.

- An article about THROMBUS project for the 6th VPH NoE has been published in the newsletter in July 2011.
- Some of THROMBUS partners are directly involve in the VPH community, Partner 7 – UvA member of the VPH-NoE, member of the VPH-Institute and active participant in VPH-FET project (A.G. Hoekstra ...) and Partner 1 – CNRS – CREATIS, member of VPH-NoE, in particular of medical Imaging group, expert engineer for medical images processing and interoperability problems (F. Cervenansky)

The consortium will make contact with similar VPH European projects in order to get mutual advantages of collaborations. This will increase the impact and the visibility of each project.

- A first contact has been taken in February 2011 with the RT3S (<http://www.rt3s.eu>) project piloted by POLIMI (Scientific coordinator: G. Dubini).
- Meetings and/or call conferences have been organised with few of the actors of the FP6 @neurist project, such as Michel Rochette from ANSYS France Company, Doctor Daniel A. Rüfenacht, Hirslanden Klinik of Zürich.

Foundation

The project to set-up a Foundation is in discussion with Doctor Daniel A. Rüfenacht. The purpose is to collect intracranial aneurysms' cases to get a database with an international exposure. This Foundation will be a relevant step to create the official 'International Interdisciplinary Cerebrovascular Foundation' linked to the ICS (<http://www.ics-meeting.net>) to insure the sustainability of itself.

Final International conference

A final International conference will be organised at the end of the project in order to capitalise and disseminate gathered knowledge. Collocate with some major VPH, Biomechanical, Computational Biology Conferences will be purchased. World recognized players in the field of aneurysms will be invited. It will allow the project researchers and external participants to have a complete view of the project outcomes and to make personal contacts which may result in the continuation of the project's work.

How?

The dissemination strategy is the following:

- End-user oriented: The Project commits to the end-user by focusing on end-user friendly and end-user active communication.
- Innovative yet appropriate: messages and communications activities will be aligned with the promise they will deliver.
- Feedback-oriented: Feedback tools will be implemented in all applicable dissemination activities. The dissemination strategy will be adapted to arising needs and internal and external communication processes can be improved.

The GB will produce a revised dissemination plan and will include it in the annual report. Therefore, the Project integrates a continuous monitoring of the dissemination by checking the following indicators:

- (a) Increased number of European scientific workshops and conferences in the field by scientists in the Project.
- (b) Increase in the collaborative work and joint publications between partners of the 'network'.
- (c) Increase in distribution of information and documentation of scientific data and materials via the dedicated Web site.
- (d) Increase number of available PhD and Post-Doc students in the Project.

Conclusion

To summarize the timing of the dissemination action and of the exploitation of results, 3 essential periods are considered in regard with the final objectives of THROMBUS:

1st year: the collaboration with hospitals (public and private) and stent manufacturers is reinforced in order to collect the maximum of relevant data and to adjust the scientific strategy of THROMBUS. This period was the time to develop complementary collaborations and to take advice from international experts. After activation of the THROMBUS website, the action of dissemination was principally limited to the advertising of THROMBUS by all partner institutions and the development of link with the other projects evolving around the VPH NoE.

2nd year: This period will essentially be dedicated to the development of methods and software codes, devoting first to the understanding of the thrombosis phenomena and second to the building of an 'expert system' leading to an adapted choice of stent for a patient specific. This period is the critical one, in the sense that the implemented methods and codes will take in consideration the scientific results of each work package. It is also the time for collaboration with other companies (ANSYS, Simple Ware ...) and institutions (ETHZ...). The idea is to compare results with others codes or method of simulation, and by the way to prepare the phase of exploitation.

3rd year: This period will allow optimizing the first prototypes of generated codes. Also it will lead to the development of the HMI (Human Man Interface) and of the 'expert system' which must help the neuroradiologist and/or the neurosurgeon towards an optimal solution for the patient taking in consideration all relevant parameters. The exploitation of results will be first realised by hospital; then according to the feedback and medical benefits, a second step will be started concerning the exploitation of results by private companies (Stent manufacturers, Software companies...) within the framework of collaboration agreements.

Appendix 1 - Cooperation with media and communication about the project

Press releases

The coordinator has issued an official press release at the launch of THROMBUS project in order to advertise the project to a large audience. To reach the objective, the coordinator has been assisted by a professional communication's agency. The press release has been sent to targeted media, journalist at newspapers, news agencies, etc. on 22/03/2011. It has been a basis for other dissemination activities listed below.

Similar activities of communication with news media are planned by the consortium at every important step of the project and at least at mid-term and at the end of the project time. Consortium members also promote THROMBUS through papers, articles, promotional material and publication on specialized journals or magazines (see appendix 2). To promote THROMBUS project partners also broadcast information via their institution's website or contact the local and national press.

- In France, on CNRS - Partner 1's initiative a press released has been published on 22/03/2011 which led to other media contacts and articles:
 - An article published on the website of "INSA" on 22/03/2011: <http://www.insa-lyon.fr/fr/media/-presse/cp22032011/laboratoire-creatis-lancement-d-un-projet-europeen-scientifique-pour-les-a>
 - An article published on the website of "La Gazette du Laboratoire" on 22/03/2011: <http://www.gazettelabo.fr/breves/breves.php?id=1498>
 - An article published on the website of "medical-news" on 24/03/2011: <http://www.medicalnews-blog.fr/2011/03/traitement-des-anevrismes-intracraniens/>
 - An article published on the website of "Maxisciences" on 24/03/2011: http://www.maxisciences.com/an%E9vrisme-intracr%E2nien/thrombus-nouvelle-etude-sur-le-traitement-des-anevrismes-intracraniens_mrm63722.html
 - An article published on the website of "CNRS" on 28/03/2011: <http://www.dr7.cnrs.fr/spip.php?rubrique1318>
 - An article published in the weekly newsletter "La letter du CNRS Rhône-Alpes" on 01/04/2011, sent to subscribers and published on CNRS' website.
- An article "Mieux guérir l'anévrisme intracrânien" has been published in the magazine "Manip info" in issue 39 of May 2011. Manip info is a paper and web magazine in radiology: <http://www.manip-info.com/>

- An article “Lancement d’un Projet Européen Scientifique pour les anévrismes intracrâniens” has been published in France in the e-magazine “L’Hospitalier” in issue of May 2011 which has been sent to 12000 hospital contacts: <http://www.zyyne.com/zf3/5968#/85/zoom>
- An advertisement has been published in the magazine Innovation & Industrie, issue 44, June 2011.
- In Belgium, on ULB – Partner 4’ s initiative an article “Le Projet Thrombus: Modéliser les anévrismes intracrâniens” was published in “Le Journal du Médecin” on 08/02/2011.

Communication about THROMBUS project


- In France, on CNRS - Partner 1’s initiative the launch of THROMBUS website has been announced in the weekly newsletter “La letter du CNRS Rhône-Alpes” on 20/05/2011, sent to subscribers and published on CNRS’ website.
<http://www.dr7.cnrs.fr/spip.php?rubrique1333#article6570>
- In Switzerland, on EPFL - Partner 3’s initiative Thrombus Project start news on EPFL webpage and on-line news channel: <http://actu.epfl.ch/news/new-european-project/>
- On the website of COVALIA – Partner 5, THROMBUS project is announced and a link to THROMBUS website is available <http://www.covalia.com/>
- The project is announced on the website of Stroke Laboratories, subcontractor of Partner 2, and the collaboration with THROMBUS project will mentioned anytime it will be possible.
- Guy Courbebaisse, CNRS – Partner 1, Coordinator of the project, has submitted a factsheet about THROMBUS, to communicate and disseminate to the Community of the e-Health projects of the European Commission. The THROMBUS ID-card has been posted on the Europa website (ICT for Health pages) and will be distributed at events, etc:
http://ec.europa.eu/information_society/activities/health/research/fp7projects/index_en.htm
- An article about THROMBUS project has been published on Covidien / Ev3 (Partner 8) internal website. This article will be included in next Pulse recap newsletter, which is distributed to all Vascular Therapies employees:

- [Vascular Therapies Home](#)
- [Our Products](#)
- [Our Disease States](#)
- [Articles and News Features](#)
- [VT Patient Focus](#)
- [Research & Development](#)
- [VT International](#)
- [Success Trees / HPMS Tools](#)
- [Legacy ev3 Portal](#)

Related Links

- [THROMBUS Website](#)

[pulse](#) > [Site Directory](#) > [Vascular Therapies](#) > [Articles and News Features](#) > [Featured News](#)

Language: [English](#) 

Project THROMBUS: Researching Stent-induced Clots in Intracranial Aneurysms

Vascular Therapies' Neurovascular Clinical Research department is working alongside multiple European universities to develop and validate a biological model of spontaneous or stent-induced thrombosis, or blood clots, in intracranial aneurysms.

When treating aneurysms with flow diversion devices, such as Covidien's Pipeline® Embolization Device, the blood flow reduction into the aneurysm is the target in order to promote thrombosis of the intracranial aneurysm while maintaining patency of the parent vessel.

Project THROMBUS is a collaborative project funded by the European Commission in the Seventh Framework Programme. The project is expected to provide:

- ▣ A reliable validated numerical model of the intra-aneurysmal thrombosis mechanisms based on biological experiments.
- ▣ A virtual tool to help choose the optimal stents based on relevant criteria issued from image processing and numerical simulation.
- ▣ Strategies for optimal stent design for stent manufacturers.
- ▣ An interactive end-user tool coupled to a medical collaborative tool for clinicians and scientists, allowing efficient exchange of information.

For more information, news and project updates, visit the [THROMBUS website](#).

Posted:
2/13/2012



Appendix 2 - Communication to the scientific community

Participation to conferences, workshops or scientific meetings

Event	ABC WIN Seminar
Date	16-21 January 2011
Location	Val d'Isère, France
Type	International Congress
Organizer	
Description	
Objective	
Target audience	Medical Doctors, Neuroradiologists
Partners involved	Partner 9 - HCL
WP concerned	WP3
Oral talk, poster or invited presentation	Oral Talk
Titre	Pipeline embolization device clinical initiatives

Event	LINNC Live Interventional Neuroradiology & Neurosurgery Course
Date	23-26 May 2011
Location	Paris, France
Type	International Conference
Organizer	
Description	
Objective	
Target audience	Medical Doctors, Neuroradiologists
Partners involved	Partner 9 - HCL
WP concerned	WP3
Oral talk, poster or invited presentation	Oral Talk
Titre	Endovascular treatment of high flow fistulas: modelization of thrombus

Event	HIT Paris 2011 (Health Information Technology)
Date	21-24 May 2011
Location	Paris
Type	Exhibition and a Conference
Organizer	PG
Description	<p>Simultaneously an Exhibition and a Conference, Hit Paris has firmly established its position as the leading event dedicated to technologies and information systems applied to health.</p> <p>Information systems have become a crucial factor in health organisation strategy. Long limited to management and office automation applications, hospital IT systems have now become routine tools of the trade and decision-</p>

	making aids.
Objective	Presentation of products, research and receipt of the 1st HIT Telemedicine Award
Target audience	Medical doctors
Partners involved	Partner 5 - Covalia
WP concerned	WP5
Oral talk, poster or invited presentation	Oral Talk
Title	1st HIT Telemedicine Award : teleneurology

Event	Joerg Bernsdorf, GRS – Partner 6 presented the ideas of Thrombus at an international level in June 2011 in Japan: <ul style="list-style-type: none"> • Tohoku University, Sendai (M.Ohta) • EU-Japan Centre for Industrial Cooperation (T.Ichioka) • Research Center for Advanced Science and Technology, The University of Tokyo (K. Nishinari)
Date	June 2011
Location	Japan
Type	International Conference
Organizer	
Description	
Objective	
Target audience	Scientific
Partners involved	Partner 6 - GRS
WP concerned	WP 4
Oral talk, poster or invited presentation	Oral talk and discussions
Title	Outline of a Coupled Multi-Scale Approach for the Numerical Simulation of Early Stage Aneurysm Development

Event	Seminar
Date	June 2011
Location	Kyoto University Graduate School of Engineering Department of Aeronautics and Astronautics
Type	Seminar
Organizer	Prof. Inamuro
Description	
Objective	
Target audience	Students
Partners involved	Partner 6 - GRS
WP concerned	WP 4
Oral talk, poster or invited presentation	Oral talk
Title	A Lattice Boltzmann Multi-Scale Simulation Environment for Application in Medical Physics

Event	International Conference on Computational Science (ICCS 2011)
Date	June 1.-3. 2011
Location	Singapore
Type	Conference Presentation
Organizer	ICCS
Description	
Objective	
Target audience	Scientific
Partners involved	Partner 6 - GRS
WP concerned	WP 4
Oral talk, poster or invited presentation	Oral talk
Title	Two Complementary Approaches for Integrating a Lattice Boltzmann Flow Solver into Simulation Frameworks

Event	[BC]2, Basel (Computational Biology Conference)
Date	June 23-24, 2011
Location	Basel, Switzerland
Type	Conference
Organizer	
Description	
Objective	
Target audience	Scientists
Partners involved	Partner 2 - UNIGE
WP concerned	WP4
Oral talk, poster or invited presentation	invited talk
Title	Multiscale modeling

Event	Eighth International Conference for Mesoscopic Methods in Engineering and Science, International Conference
Date	July 4-8, 2011
Location	Lyon, France
Type	International Conference
Organizer	
Description	
Objective	
Target audience	Scientific
Partners involved	Partner 6 - GRS
WP concerned	WP 4
Oral talk, poster or invited presentation	Oral talk
Title	Outline of a Coupled Multi-Scale Approach for the Numerical Simulation of Early Stage Aneurysm Development

Event	ICS11, (IntraCranial Stent meeting)
Date	Sep. 8-11 2011
Location	Shanghai
Type	Conference
Organizer	
Description	
Objective	
Target audience	Medical doctors and scientists
Partners involved	Partner 2 - UNIGE
WP concerned	WP4
Oral talk, poster or invited presentation	Oral talk (by Hitomi Anzai)
Title	A possible approach to do stent optimization

Event	European Society of Minimally Invasive Neurological Therapy (ESMINT)
Date	8-10 September 2011
Location	Nice, France
Type	Conferences
Organizer	
Description	
Objective	
Target audience	Medical Doctors
Partners involved	Partner 9 - HCL
WP concerned	WP2
Oral talk, poster or invited presentation	Oral talk
Title	Computational Fluid Dynamics (CFD) models for intracranial aneurysms: Are they helpful for the clinicians?

Event	IEEE Int. Conf. on Image Processing
Date	11-14 Sept. 2011
Location	Brussels, Belgium
Type	International Conference
Organizer	IEEE
Description	The main scientific conference in image processing
Objective	Disseminate our research
Target audience	Image processing community
Partners involved	EPFL
WP concerned	WP3
Oral talk, poster or invited presentation	Oral presentation
Title	Harmonic Active Contours for multichannel image segmentation

Event	CADMOS Day
Date	Sept 14, 2011
Location	Geneva, Switzerland
Type	Conference
Organizer	
Description	THROMBUS project has been mentioned as an example of an application for which computer modelling is important
Objective	
Target audience	General public and Researchers
Partners involved	Partner 2 – UNIGE
WP concerned	WP4
Oral talk, poster or invited presentation	Oral talk
Title	Sciences computationnelles et projet CADMOS

Event	Academician E.N. Meshalkin Novosibirsk State Research Institute of Circulation Pathology (NRICP), Ministry for Health Care & Social Development of Russia
Date	5th October 2011
Location	Novosibirsk, Russia
Type	Conferences
Organizer	
Description	
Objective	
Target audience	Medical Doctors, Neuroradiologists
Partners involved	Partner 9 - HCL
WP concerned	WP2 and WP5
Oral talk, poster or invited presentation	Oral talk
Title	Current Techniques in the Neurology

Event	Journées Nationales d'Etudes sur les Dispositifs Médicaux, Euro-Pharmat
Date	11th October 2011
Location	Lyon, France
Type	Conferences
Organizer	
Description	
Objective	
Target audience	Medical Doctors, Neuroradiologists
Partners involved	Partner 9 - HCL
WP concerned	WP2 and WP5
Oral talk, poster or invited presentation	Oral talk
Title	Traitement neuroradiologique des anévrismes et autres pathologies cérébrales (rétrécissement)

Event	ANTEL (Nation Telemedicine Association : France)
Date	17-18 November 2011
Location	Paris
Type	Exhibition and a Conference
Organizer	ANTEL
Description	http://www.antel.fr/accueil.html
Objective	Presentation of products and research
Target audience	Medical doctors
Partners involved	Covalia
WP concerned	WP5
Oral talk, poster or invited presentation	Oral Talk
Title	Telemedicine : innovation and research

Event	DSFD
Date	07/01/12
Location	India
Type	Scientific Meeting
Organizer	http://dsfd.org/
Description	Discrete simulations of fluid dynamics
Objective	3D macroscopic model for thrombosis
Target audience	Scientific
Partners involved	UNIGE, UvA, GRS
WP concerned	WP4
Oral talk, poster or invited presentation	Oral talk
Title	Modelling and Numerical Simulation by Lattice Boltzmann Method

Participation to other conferences on simulations and/or on biomedical applications is planned for the future, depending on the results. We aim to attend relevant international conferences and workshops for THROMBUS project such as:

- 40th Speedup workshop, 6 February 2012 in Basel, Switzerland:
http://www.speedup.ch/workshops/w40_2012.html, Partner 2 – UNIGE will mentioned THROMBUS project as an example of an application using the lattice Boltzmann approach
- The Academy of Sciences, February 2012 in Rabat, Morocco, Partner 2 – UNIGE will be invited for a talk and will present THROMBUS project.
- European Signal Processing Conf. (EUSIPCO), 27-31 August 2012 in Bucharest, Romania organized by the European Association for Signal and image Processing (EURASIP), this is

the reference European conference in the field ; <http://www.eusipco2012.org>. Partners 3 – EPFL & CHUV (subcontractor) will be involved for Work Package 3

Scientific articles, reviews and other publications

Articles already published:

Title	Two Complementary Approaches for Integrating a Lattice Boltzmann Flow Solver into Simulation Frameworks http://www.sciencedirect.com/science/article/pii/S1877050911001657
Journal	Procedia Computer Science, Volume 4, 2011, Pages 1014–1020
Type	Journal
Date of submission / acceptance	2011
Target audience	Scientific
Name of authors	J.Bernsdorf, G.Berti, d.Wang
Partners involved	Partner 6 - GRS
WP concerned	WP 4

Title	THROMBUS - A quantitative model of thrombosis in intracranial aneurysms
Journal	VPH NoE Newsletter
Type	e-newsletter
Date of submission / acceptance	July 2011
Description	The Coordinator of the project has received an invitation to submit an article about THROMBUS project for the 6 th VPH NoE newsletter in: http://www.vph-noe.eu/vph-repository/doc_download/216-vph-noe-6th-newsletter-july-2011-
Target audience	Scientific
Name of authors	Guy Courbebaisse
Partners involved	Partner 1 - CNRS
WP concerned	All

Title	Segmentation of Giant Cerebral Aneurysms Using a Multilevel Object Detection Scheme Based on Lattice Boltzmann Method
Journal	ICSPCC 2011, IEEE International Conference on Signal Processing, Communications and Computing
Type	Scientific Proceeding
Date of submission / acceptance	September 2011
Description	
Target audience	Scientific
Name of authors	Yan Wang, Guy Courbebaisse, Yue Min Zhu
Partners involved	Partner 1 - CNRS
WP concerned	WP3

Title	Learning from Only Positive and Unlabeled Data to Detect Lesions in Vascular CT Images
Journal	Medical Image Computation and Computer Assisted Intervention conference - MICCAI 2011, vol. LNCS 6893, Part III, Toronto, Canada, Springer, Heidelberg, pp. 9-16
Type	Scientific Proceeding
Date of submission / acceptance	September, 2011
Description	
Target audience	Scientific
Name of authors	M.A. Zuluaga, D. Hush, E. J. F. Delgado Leyton, M. Hernández Hoyos, and M. Orkisz
Partners involved	Partner 1 - CNRS
WP concerned	WP3

Title	Harmonic Active Contours for multichannel image segmentation
Journal	Proc. of the 2011 IEEE Int. Conf. on Image Processing
Type	Conference paper
Date of submission / acceptance	ICIP2011, Brussels, Sept. 11-14, 2011
Description	Multimodal image segmentation
Target audience	Image processing community
Name of authors	Estellers Casas, Virginia; Zosso, Dominique; Bresson, Xavier; Thiran, Jean-Philippe
Partners involved	EPFL
WP concerned	WP3

Title	Geodesic Active Fields - A Geometric Framework for Image Registration
Journal	IEEE Transactions on Image Processing
Type	Journal paper
Date of submission / acceptance	Vol. 20, num. 5, p. 1300-1312, 2011
Description	A geometric framework for image registration, thus very robust and flexible. Needed for motion field analysis.
Target audience	Image processing community
Name of authors	Zosso, Dominique; Bresson, Xavier; Thiran, Jean-Philippe
Partners involved	EPFL
WP concerned	WP3

Title	Fast Geodesic Active Fields for Image Registration based on Splitting and Augmented Lagrangian Approaches
Journal	IEEE Transactions on Image Processing
Type	Journal paper

Date of submission / acceptance	Submitted 01.09.2011, under review
Description	An efficient implementation of the above-mentioned paper
Target audience	Image processing community
Name of authors	Zosso, Dominique; Bresson, Xavier; Thiran, Jean-Philippe
Partners involved	EPFL
WP concerned	WP3

Title	Optimization of flow diverters for cerebral aneurysms
Journal	J. of Computational Sciences (JoCS)
Type	Scientific paper
Date of submission / acceptance	Accepted Dec 2011
Description	A preliminary study of the feasibility to combine optimization methods and a Lattice Boltzmann simulation to compute an optimal stent geometry
Target audience	Numerical modeling and simulation, stent manufacturers
Name of authors	Hitomi Anzai, Makoto Ohta, Jean-Luc Falcone and Bastien Chopard
Partners involved	Partner 2 - UNIGE
WP concerned	WP4

Title	An Efficient Algorithm for Level Set Method Preserving Distance Function
Journal	IEEE Transactions on Image Processing
Type	Journal paper
Date of submission / acceptance	Submitted 17.10.2011, accepted subject to minor revision, 06.12.2011
Description	An efficient algorithm for object segmentation by level sets, preserving the distance function, thus appropriate for motion field analysis.
Target audience	Image processing community
Name of authors	Estellers Casas, Virginia; Zosso, Dominique; Lai, Rongjie; Thiran, Jean-Philippe; Osher, Stanley; Bresson, Xavier
Partners involved	EPFL
WP concerned	WP2

Future publications

Title	To be defined
Journal	Biomechanical journal
Type	Scientific paper
Date of submission / acceptance	2012
Description	Analysis of Impact-R experiment and extraction of the parameters for the numerical simulation
Target audience	Scientific
Name of authors	To be defined
Partners involved	WP2, WP4
WP concerned	WP2, WP4

Title	Numerical simulation and in vitro validation of the adhesion and aggregation of platelets to aneurysm wall.
Journal	Cardiovascular Research
Type	Research paper
Date of submission / acceptance	March - April 2012
Description	Combination of simulation based on patient's aneurysms and in vitro experiments.
Target audience	Cardiovascular and Neurovascular
Name of authors	Not define yet.
Partners involved	Partner 4-ULB, Partner 2-UNIGE, Partner1-CNRS
WP concerned	WP2 and WP4

Title	Bi-planar 2D-to-3D Registration in Fourier Domain for Stereoscopic X-Ray Motion Tracking
Journal	IEEE Trans, on Biomedical Engineering
Type	Journal paper
Date of submission / acceptance	April 2012
Description	A paper describing the method developed for the 2D to 3D registration, to be used for the validation of the wall motion tracking
Target audience	Image processing
Name of authors	Shima Sepehri and Jean-Philippe Thiran
Partners involved	EPFL
WP concerned	WP3

Title	To be defined
Journal	VPH2012 conference
Type	Scientific Proceeding
Date of submission / acceptance	September 2012
Description	Investigation of RBC-enhanced platelet transport in stented aneurysms using the fully resolved microscopic model
Target audience	
Name of authors	Alfons G. Hoekstra
Partners involved	Partner 7 - UvA
WP concerned	WP4

More papers are planned on the thrombosis model, or simulations results. Journals will depend on results. Some journals will be targeted for publications such as:

- American Journal of Neuroradiology, AJNR ; <http://www.ajnr.org/>

- Neurosurgery ; <http://journals.lww.com/neurosurgery/pages/default.aspx>
- IEEE Transactions on Medical Imaging ; <http://www.ieee-tmi.org/>
- IEEE Transactions on Biomedical Engineering ; <http://tbme.embs.org/>
- Nature Methods, <http://www.nature.com/nmeth/index.html>:

Publication about: Methods to determine the platelets behaviour in an in vitro model of aneurysm by digital holographic microscope, submission planed in 2012

- Blood, <http://bloodjournal.hematologylibrary.org/>:

Adherence of platelets on whole blood in relation to shear rate: role of laminin, collagen and fibronectin, submission planed in 2012

Note: All the publications resulting from the work carried out in the project will be available or at least mentioned (in case of copyright issues) on THROMBUS website.

Appendix 3 - Collaborations within the consortium

Working visits of project participants amongst teams

- 11/02/2011: E Garcia (Covalia – Partner 5) visited CREATIS’ team (CNRS - partner 1) in Lyon, France for the WP5 Meeting, presentation of Creatools by Creatis.
- 18/04/2011: Eric Garcia (COVALIA - Partner 5) visited Jean-Philippe Thiran (EPFL - Partner 3) for a WP3 Technical Meeting with a demonstration of Covotem and technical discussion concerning the image processing part dedicated to the collaborative system.
- 21/04/2011: Eric Garcia (COVALIA - Partner 5) visited Francis Turjman (HCL - Partner 9) and Guy Courbebaisse (CNRS - Partner 1), Patrick Clarysse (CNRS - Partner 1), Eduardo Davila (CNRS - Partner 1), Maciej Orkisz, (CNRS - Partner 1) in Lyon, France for a WP5 Meeting about Collaborative system and Human Machine Interface (HMI) – Strategy and informatics means.
- 28/04/2011: Bastien Chopard (UNIGE - Partner 2), Joerg Bernsdorf (GRS - Partner 6), Simon Zimny (GRS - Partner 6) visited Alfons G. Hoekstra (UvA - Partner 7) for a WP4 technical meeting.
- 28/04/2011: Jean-Philippe Thiran and Shima Sepehri (EPFL - Partner 3), Guy Courbebaisse, Olivier Bernard and Thomas Philiber (CNRS - Partner 1) visited Francis Turjman (HCL - Partner 9), in hôpital Neuro, Lyon, France, to define image acquisition and follow-up protocols, WP3 medical imaging and Image Processing
- 12-13/05/2011: Guy Courbebaisse (CNRS - partner 1) and Laurent Navarro (EMSE), visited Jean-Philippe Thiran (EPFL - partner 3) for a meeting on WP3 Segmentation and estimation of movement.
- 27/05/2011: Guy Courbebaisse (CNRS - partner 1) visited Bastien Chopard, Orestis Malaspinas and Jonas Latt (UNIGE - Partner 2) for a WP4 meeting about numerical simulation.
- 29/05/2011: Guy Courbebaisse (CNRS - partner 1) visited Alain Bonafé and Vincent Costalas (CHU Montpellier, Gui de Chauliac - Subcontractor of partner 1) for a discussion about WP3 Medical Imaging.

- 18-19/07/2011: Guy Courbebaisse (CNRS - partner 1) and Laurent Navarro (EMSE), visited Jean-Philippe Thiran (EPFL - partner 3) for a meeting on WP3 Segmentation and estimation of movement.
- 08/08 2011: Guy Courbebaisse (CNRS - partner 1) visited Karim Zouaoui –ULB (partner 4) in Charleroi for a discussion about and WP2 IN VITRO experiments, Data processing, and industrial transfer with the company OVISIO.
- 19/10/2011: Eric Lorenz, Lampros Mountrakis (UvA – Partner 7) and Simon Zimny (GRS – Partner 6) visited ULB (Partner 4) for a cross meeting WP2-WP4 to discuss and synchronize on the Scale Separation Map of the multiscale model.
- 27/10/2011: Jean-Philippe Thiran (EPFL - Partner 3) visited ULB (Partner 4) in CHU Charleroi, Belgium, cross meeting WP2-WP3 to discuss in-vitro aneurism wall motion validation.
- 28-29/11/2011: Eric Lorenz and Lampros Mountrakis (UvA – Partner 7) visited ULB (partner 4) for a better understanding of the thrombus creation. The discussions mainly involved the key processes taking place in platelet aggregation, platelet adhesion and the coagulation cascade, cross meeting WP2-WP4.
- 09/12/2011: Orestis Malaspinas (UNIGE – Partner 2) visited UvA, WP4 meeting for an advanced session of Palabos, oriented in the possible implementation of 3D suspended particles in Palabos' framework.
- 09/12/2011: Christian Outrilla (EV3 - partner 8), and Guy Courbebaisse (CNRS - partner 1) visited Francis Turjman (HCL - partner 9) for a WP3 meeting, in order to transmit the expertise of the Flow Diverter ‘Pipeline developed by EV3 and to provide the consortium EV3 stents for IN VITRO experiments programmed by Karim Zouaoui (ULB - partner 4)
- 18-19/01/2012: Simon Zimny (GRS - Partner 6) and UvA - Partner 7 visited UNIGE (Partner 2) for a WP4 technical meeting at University Geneva.
- 30/01/2012: Christian Outrilla (EV3 - partner 8), and Guy Courbebaisse (CNRS - partner 1) visited Francis Turjman (HCL - partner 9) for a WP3 meeting, in order to transmit the expertise of the Flow Diverter ‘Pipeline developed by EV3 and to provide the consortium EV3 stents for IN VITRO experiments programmed by Karim Zouaoui (ULB - partner 4)
- 01/02/2012 Guy Courbebaisse (CNRS - partner 1) went to a workshop in CHU Montpellier with members of the IRRAS research group linked to the NUMEV Labex (laboratoire

d'excellence): Professor Alain Bonafé , Vincent Costalas, Omer Eker – CHU Montpellier – Gui de Chauliac (Subcontractor of partner 1), Franck Jourdan Université de Montpellier – LMGC (IRRAS – NUMEV) : WP3 Medical Imaging.

- Every month: a WP3 meeting is organised between EPFL (partner 3) & CHUV (Subcontractor of EPFL) to follow the work on wall motion analysis.
- Every month: a meeting is organised between Guy Courbebaisse (CNRS - partner 1) & Francis Turjman (HCL - partner 9, Department of Neuroradiology): WP3 and WP5 to follow the work on the collaborative online system, the study of new patient specific aneurysms and the modelling of stent.