



Action TD0906

Biological adhesives: from biology to biomimetics

Chair of the Action: Dr Patrick FLAMMANG, BE,
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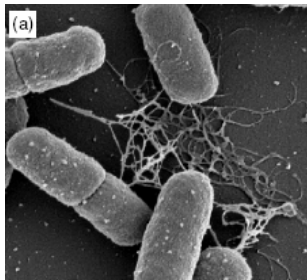
Science Officer: Dr Lucia FORZI, lforzi@cost.eu

General background

Challenges for new adhesives

- enable attachment to a variety of surfaces, also in fluid environments, for a broad range of applications
- be environment-friendly
- be reusable, allowing multiple attachments and detachments
- be reversible (or switchable), so that detachment can occur at will with negligible force

Biological adhesives often offer impressive performances and, therewith, the potential to inspire novel, superior industrial adhesives for an increasing variety of high-tech applications.





Reasons for the Action

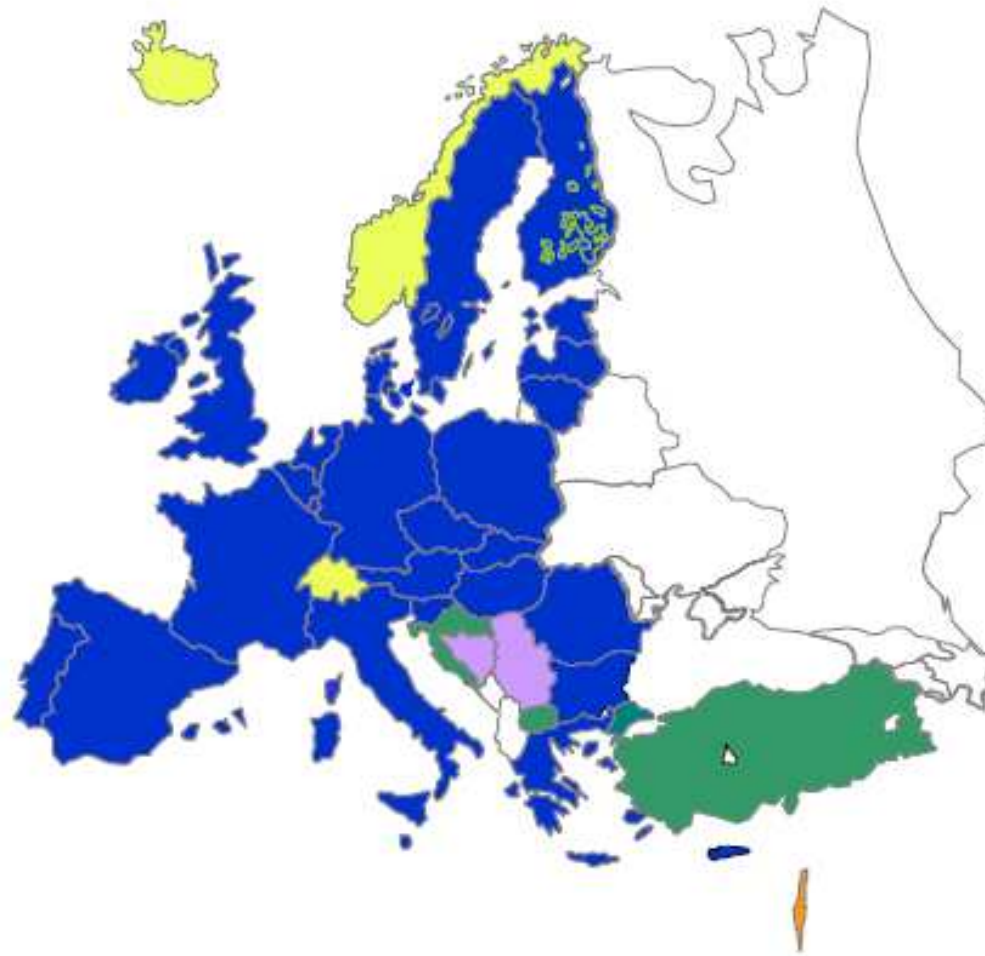
Of all biological phenomena that have been investigated with a view to biomimetics, adhesion has perhaps received the most interest. Yet, because of the complexity of this phenomenon and the multi-disciplinarity needed to tackle it, there has been little visible progress in the development of bio-inspired adhesives. This *COST* Action will unite widespread European expertise and activities in the fields of biological and technological adhesives, streamlining and pooling knowledge, methods and techniques, avoiding duplication of effort, decreasing costs, and accelerating scientific and technological progress in Europe.

Objectives

The **main objective** of the Action is to gain new understanding relating to the mode of action of biological adhesives so as to facilitate the development of synthetic counterparts with improved function.

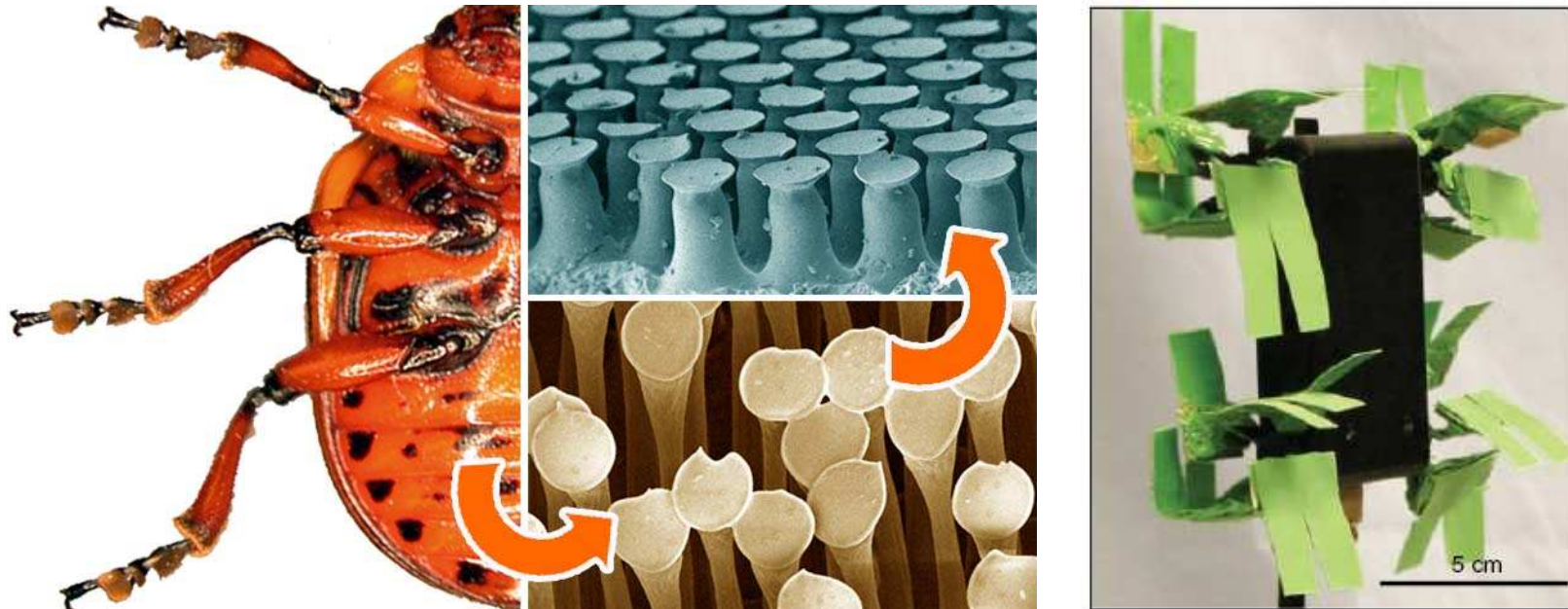
Participating countries

AT, BE, CH, DE, FI, FR, IE, IL, IT, PT, RO, SE, TR, UK

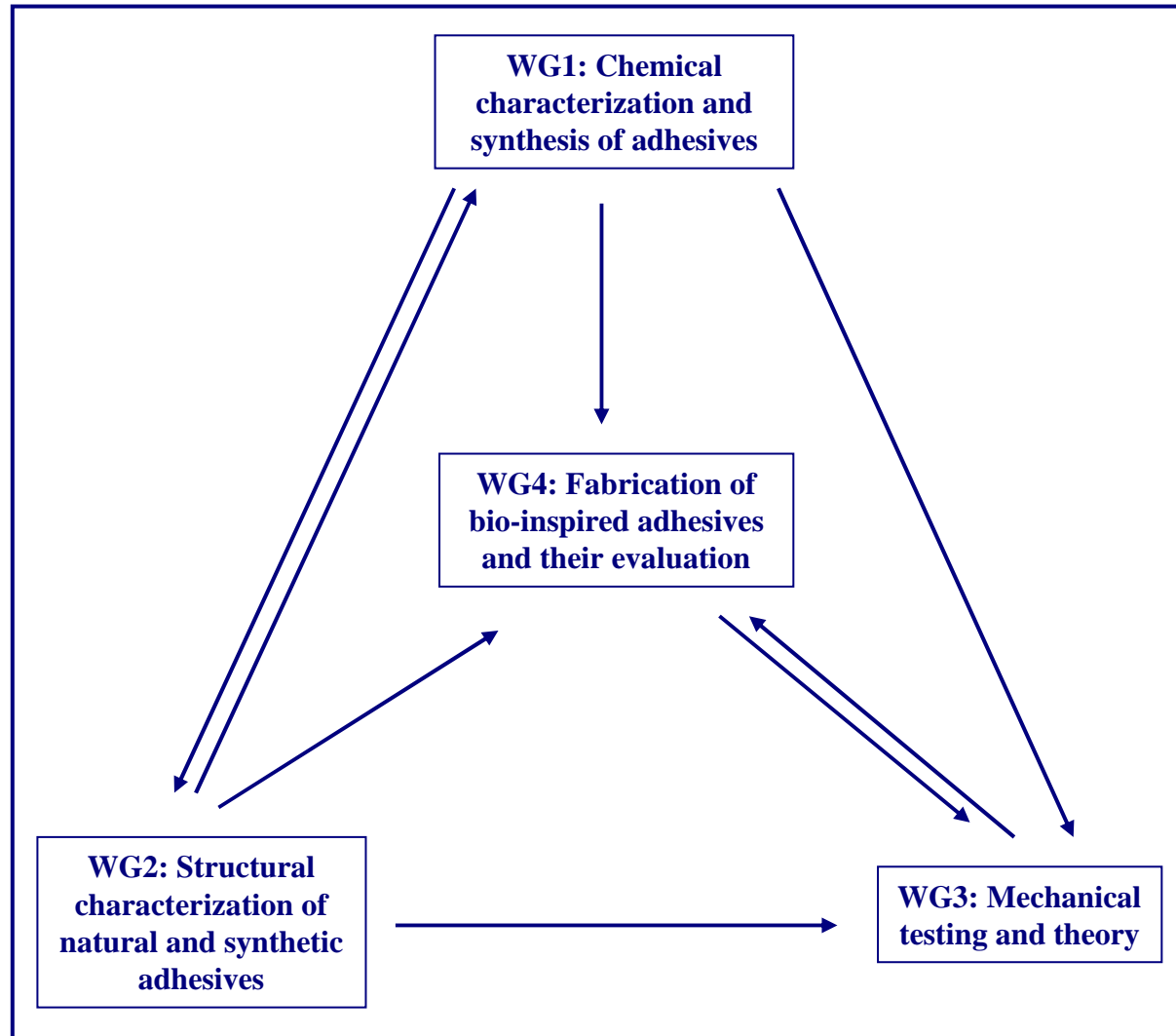


Scientific programme

- Identifying model organisms
- Analyzing natural adhesion mechanisms
- Determining the main structural and molecular components
- Transfer of knowledge to design bio-inspired materials
- Synthesis of patterned adhesives or biological glue mimics
- Development of technical adhesives for specific applications



Scientific programme





How will the objectives be achieved?

Our first **milestone** is the **effective organization of the COST Action** (critical mass, balance, visibility, diversity of activities).

Members of this Action will provide all the resources and infrastructure (the personnel and the equipment) to build the critical mass needed to achieve its objectives. The **mechanisms of COST** will be used in order to assure the full exploitation of the potential available from the member research teams.

- **Website**
- **Short term scientific missions (STSMs)**
- **Meetings (MC and WG meetings)**
- **Other**



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- **Website**

<http://www.cost-bioadhesives.org/>

- **Short term scientific missions (STSMs)**

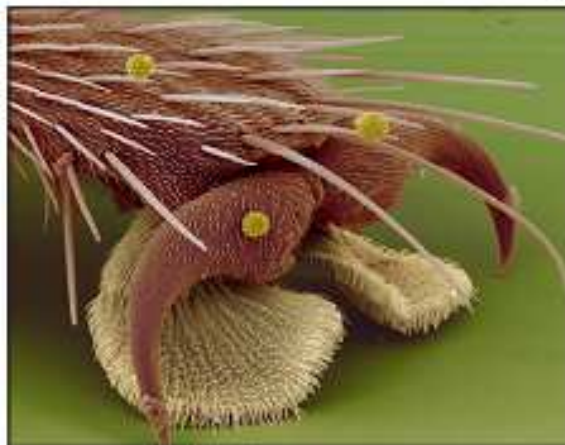
- **Meetings (MC and WG meetings)**

BIOLOGICAL ADHESIVES

FROM BIOLOGY TO BIOMIMETICS

HOME WORKING GROUPS MEMBERS NEWS/EVENTS SYM CONTACT

INTRODUCTION



Biological adhesives offer impressive performances in their natural context, and have the potential to inspire novel superior industrial adhesives for an increasing variety of high-tech applications. The main objective of this Action is to gain new understanding relating to the mode of action of biological adhesives so as to facilitate the development of synthetic counterparts with improved function. The so bio-inspired adhesives will provide more elegant solutions to contemporary engineering and biomedical adhesive requirements and will additionally provide a platform for future technological innovation that requires adhesion in hostile conditions as a prerequisite. Using an iterative, multidisciplinary approach structures, functions and principles of natural models can be experimentally studied, theoretically analyzed and prototyped in order to bring innovative bio-inspired adhesives to the market.

Our Action aims at uniting widespread and diverse European expertise in the fields of biological and technological adhesives (biology, physics, chemistry and engineering), streamlining and pooling knowledge, methods and techniques, avoiding duplication of effort, decreasing costs, and accelerating scientific and technological progress in Europe.

For more details on our action, please read the [Conservation of Understanding](#)

NEWS

12.02.10

KICK-OFF SCIENTIFIC WORKSHOP

3-5 November 2010, Vienna

Our first scientific workshop on biological and biomimetic adhesives will be held on 3-5 November 2010 in Vienna, Austria.

06.02.10

KICK-OFF MC MEETING

18th May 2010, Brussels

Decisions from the kick-off management committee meeting held on 18 May 2010 at the COST office in Brussels.

PRACTICAL INFORMATION



ACTION TOOLS

DOWNLOAD THE MEMORANDUM OF UNDERSTANDING



HOW TO JOIN

DOCUMENTS

JOBS

CREDITS

<http://www.cost-bioadhesives.org/>

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HOW TO JOIN

If you want to join the action, please fill in the following form.
Your application will be reviewed by the Management Committee for acceptance.

Title: *Mandatory

Name:

Surname:

Gender: Male Female

Function:

Affiliation:

Address:

Postal Code City

Country:

E-mail:

Personal or laboratory website:

ISSN: http://www.cost

Working group: WG1 WG2 WG3 WG4
PLEASE INDICATE THE WORKING GROUP YOU WANT TO JOIN.

Research interest:

Specialized technique available in my lab:

Additional comment:

SEND

NEWS

12.02.10
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3-5 November 2010, Vienna
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08.02.10
KICK-OFF MC MEETING
18th May 2010, Brussels
Decisions from the kick-off management committee meeting held on 18 May 2010 at the COST office in Brussels.

PRACTICAL INFORMATION



ACTION TO DO

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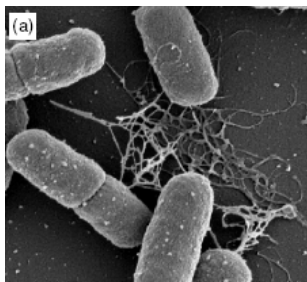
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Short term scientific missions (STSMs)

COST Actions can provide **grants for scientific missions** (exchange visits) aimed at strengthening the existing network by allowing scientists to go to an institution or laboratory in another COST Country to foster collaboration, to learn a new technique or to take measurements using instruments and/or methods not available in their own institution/laboratory. STSMs are particularly, but not exclusively, intended for young scientists. Missions can last from 5 days up to 3 months and the grant finances fixed allowances for travel (300 €) and daily accommodation (60 to 90 € per day) for a maximum of 2500 € in total.

STSM Coordinator : **Anika Mostaert**





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Kick-off scientific workshop, Vienna, 3-5 November 2010



Thank you very much to Sylvia and Janek
for organizing the workshop



Enjoy the talks !