Version 21/04/2016

# COST Action BM1406
# (2015-03-31– 2019-03-30)

## IONCHAN-IMMUNRESPON: ION CHANnels and IMMUNe RESPONse Toward a global understanding of immune cell physiology And for new therapeutic approaches

## PROGRESS REPORT AT MONTH 24

**This report is submitted by the MC Chair on behalf of the Management Committee.**

**Confidentiality:** This report, other than section II.D, is non-confidential. Section II.D is confidential to the Management Committee and the COST Association (including the Committee of Senior Officials, Scientific Committee and Administration).


**Executive summary of the Progress Report:**

The activity of the COST Action BM1406 entitled "Ion Channels and Immune Response toward a global understanding of immune cell physiology and for new therapeutic approaches (IONCHAN-IMMUNRESPON)" during the 24 Month period was characterised by 5 meetings and workshops including the kick off meeting, and 9 STSM.

The aim of all the meetings was to merge in a single location the participants in order to spur new collaborative ideas and projects. In this term, the activity was very successful. Of particular interest, the outcome of the meeting was the beginning of collaborative exchange on topics such as strategies to modulate ion channels in immune cells, thanks to antibodies, drugs and siRNA. The Third Meeting in Lisbon, in which we focused on the WG3, clearly demonstrated that the siRNA approach is not yet available for therapies through the ion channels. Chemical drugs and therapeutic antibodies seem to be a better trail to investigate ion channel modulation. Each meeting gave the opportunity to the participants to exchange scientific expertise and to have fruitful discussions. The STSMs of young researchers inside the Action increased the knowledge of skills of each laboratory that allows the collaborations and material exchanges. In this, our objective, which is to build working relationships within European research groups, is reached in full.

The outcomes of the Action could be appreciated thank to the numbers of submitted projects on the national and European levels, the numbers of publications in which the Action has been acknowledged, the collaborative projects supported or not by the Action, the number of ITC partners involved into these projects. The important scientific advance has been reported in the paper of Prof. di Virgilio and Pablo Pelegrin concerning the role of the nlrp3/P2X7 in cancer cells. It is a major concern for this type of cancers to understand which inflammation is induced and why the immune system does not attack against the cancer cells. The Action has allowed also the study of very particular channels such as aquaporin, which has lead to the publication of three articles.

The Action has increased the individual scientific foresight and a large number of us have been invited to the other laboratories for conferences and seminars in each partners countries. We paid a large attention to the young researchers and PhD. Fellow for those STSM are priority dedicated.

We have a nice success story with the creation of a start 'up by our colleagues from Switzerland in Geneva that participate to the industrial task of Europe. Nevertheless, we observed that the relation with industries in the Action is less efficient to start collaborative projects and so we decided for the next GP to increase the number of STSM for the industrial partners. To sum up, this first period of activity allows us to establish scientific relation in a common scientific area, a to build strategies to study the role of ion channels in immune cells, and evaluate the appropriate trail to module the immune cell activity.



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# I. Progress Report

## I.A. COST Action Profile

**Objective/ Aim**

The main objective of the Action is to use modulation of ion channels for therapeutic approaches in immune diseases by identification of the pertinent targets, the development of animal models and a better understanding of their role in immune cell functionality.

**Details**

| | | | |
|---|---|---|---|
| MoU: | 084/4 | Start of Action: | 2015-03-31 |
| CSO approval date: | 2014-11-13 | End of Action: | 2019-03-30 |

**COST Member Countries and Cooperating State having accepted the MoU**

| Country | Date | Status |
|---|---|---|
| Austria | 20/01/2015 | Confirmed |
| Belgium | 06/03/2017 | Confirmed |
| Bosnia and Herzegovina | 21/10/2015 | Confirmed |
| Croatia | 03/02/2015 | Confirmed |
| Czech Republic | 26/03/2015 | Confirmed |
| Denmark | 05/12/2014 | Confirmed |
| Estonia | 11/02/2015 | Confirmed |
| France | 27/11/2014 | Confirmed |
| fYR Macedonia | 30/01/2015 | Confirmed |
| Germany | 15/12/2014 | Confirmed |
| Greece | 16/12/2014 | Confirmed |
| Hungary | 17/12/2014 | Confirmed |
| Ireland | 25/07/2016 | Confirmed |
| Israel | 30/11/2014 | Confirmed |
| Italy | 29/01/2015 | Confirmed |
| Latvia | 27/03/2015 | Confirmed |
| Luxembourg | 01/12/2014 | Confirmed |
| Norway | 11/02/2015 | Confirmed |
| Poland | 05/12/2014 | Confirmed |
| Portugal | 16/02/2015 | Confirmed |
| Serbia | 04/03/2016 | Confirmed |
| Slovenia | 18/03/2015 | Confirmed |
| Spain | 21/11/2014 | Confirmed |
| Sweden | 11/02/2015 | Confirmed |
| Switzerland | 16/01/2015 | Confirmed |
| Turkey | 24/08/2015 | Confirmed |
| United Kingdom | 18/11/2014 | Confirmed |

**Total: 27**

Intentions to Accept the MoU

0

**Other participants:**

| Institution Name | Country |
|---|---|
| New York University School of Medicine Department of Pathology and Cancer Institute | **USA** |
| Washington State University, Neuroscience Department of Integrative Physiology and Neuroscience | **USA** |

**Contacts**

**Chair/ Vice Chair**

| Position | Name | Contact details | Country | Date of PhD: | Gender |
|---|---|---|---|---|---|
| Chair: | VELGE-ROUSSEL Florence | University of Tours, UFR Medicine<br>10, Bvd Tonnellé, 37032 TOURS France,<br>Tel.+33247366058<br>Fax +33247366146<br>velge@univ-tours.fr | France | 1989 | F |
| Vice Chair: | PELEGRIN Pablo | Murcia's Biohelath Research Institute (IMIB-Arrixaca)<br>Edificio LAIB Carretera Buenavista s/n 30120 Murcia Spain<br>+34868885038<br>pablo.pelegrin@ffis.es | Spain | 2003 | M |

**Working Group Leaders**

| WG# | WG Title | WG Leader | Country | Date of PhD: | Gender | Number of participants |
|---|---|---|---|---|---|---|
| 1 | Identification and Characterization of ion channels in immune cells | Dr Ruth Murrell-Lagnado | UK | 1988 | F | 60 |
| 2 | Role of ion channels in immune pathologies | Prof Francesco Di Virgilio | IT | ? | M | 40 |
| 3 | Ion channels as new targets in therapy and diagnosis | Prof Friedrich Koch-Nolte | DE | ? | M | 30 |

**Other positions if applicable** (STSM Coordinator, WG Vice Leader, Task Force Leader…)

| Position | Name | Country | Date of PhD: | Gender |
|---|---|---|---|---|
| Representative of Early-Stage researchers (ESRs) | Ellegaardl M. | DK | 2013 | F |
| Representative of SMEs | Toomas Neuman | EE | ? | M |
| Coordinator of STSMs | Barbara Niemeyer | DE | ? | F |
| Dissemination Coordinator | Antoine El Chemaly | CH | ? | M |

| **Action website:** | http://costbm1406.univ-tours.fr/home/ |
|---|---|

## I.B. Progress with MoU objectives and deliverables and additional outputs

**MoU objectives**

| MoU objective | Achieved Yes/ Partially/ No | Evidence of (partial) achievement including hyperlink to enable assessment of the achievement[1]. Justification if full achievement is not foreseen |
|---|---|---|
| OBJ1. Available data managing and validation strategies consensus for identified targets. | Partially | Each scientific article represents a step in the knowledge about each target identified<br>Each meeting allowed achievements and collaborations<br>i.e. scientific reports of all meetings<br>http://costbm1406.univ-tours.fr/home/ |
| OBj2. Identification of target diseases. | Partially | WG2 meeting in Belgrade focused on the thematic and some candidates have been evidenced |
| OBj3. Translating OBJ1 and 2 into preclinical animal models. | Partially | Exchanges between partners during the Zagreb meeting allow the exchange of mouse models |
| OBJ4. Therapeutics | Partially | We explored the three strategies explained into the MoU in the Lisbon meeting with expert's advices. See Lisbon report (http://costbm1406.univ-tours.fr/home/) |

**MoU deliverables**

| MoU deliverable | Level of progress[1] | Evidence of (partial) delivery achievement including hyperlink to enable assessment of the delivery[1]. Justification if full achievement is not foreseen |
|---|---|---|
| Building of BM1406 website to communicate with all members | Achieved | http://costbm1406.univ-tours.fr/home/<br>https://www.facebook.com/BM1406?fref=ts |
| Position paper of F di Virgilio, Involvement of the P2X7-NLRP3 axis in leukemic cell proliferation and,death. Sci. Rep. 6, 26280 | Achieved | http://www.nature.com.gate2.inist.fr/articles/srep26280 |
| Publication of periodic newsletter send to all members of BM1406 Action | Partially achieved | Two newsletters per year<br>http://costbm1406.univ-tours.fr/newsletters/ |
| SOPs in microscopy for calcium image | Achieved | http://kurser.ku.dk/course/nscphd1123/ |
| Position paper<br>Special issue in Current Opinion in Immunology will be elaborated by the BM1406 members | Partially achieved | http://www.current-opinion.com/journals/current-opinion-in-immunology/ |

**Co-authored publications and FP7/ H2020 proposals**

The co-authored publications and FP7/ H2020 proposals/ projects resulting from the Action are listed on the page following the "Additional outputs and achievements" section

**Additional outputs and achievements**

| Please describe any other outputs and achievements that have resulted or are in progress, focusing in particular on those that contribute to the COST mission of "COST enables break-through scientific developments leading to new concepts and products and thereby contributes to strengthen Europe's research and innovation capacities." |
|---|
| Collaboration between Croatia and Portugal members open the new thematic with the identification of the role of aquaporins in immune cells (ITC, EWP) |

[1] The links to the outputs and deliverables will be used by the Action Rapporteur in assessing the progress.



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| |
|---|
| Determination of STIM1 role in depression (Majeswski et al.2016) |
| Demonstration of the pole of MLRP3 and P2X7 axis in the cancer cells. |
| |
| |
| |



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**Co-authored publications and FP7/ H2020 proposals**

***Co-authored publications***

Enter in the table below only publications on the topic of the Action, co-authored by at least two Action participants from two different countries participating in the Action and for which the Action networking added value. A maximum of ten publications may be entered. If the Action has more than ten such publications the Core Group should select the ten most significant ones to include in the table below.

| NO. | Bibliographic data (including: Title, Authors, Title of the periodical or the series, Issue number or volume, Publisher, Year of publication, Relevant pages) | Main author | Number of authors | Action participants listed among the authors (Name, country and role[2]) | WGs involved in publication | Date of submission (must be after Action start date) | Expected date of publication (if not already published) | Persistent link to publicly available version of the paper (if available) or the abstract | Is/Will open access[3] provided to this publication? | Is/ will COST be cited/ acknowledged in the publication? | Are/ will COST funds (be) implicated in this publication | Relevance to H2020 Societal Challenges[4]? | Is it peer-reviewed? | Was the added value of the Action Networking necessary for the publication | Impact Factor (if applicable) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Immature human dendritic cells enhance their migration through KCa3.1 channel activation. David Crottès, Romain Félix, Daniel Meley, Stéphanie Chadet, Florence Herr, Cindy Audiger, Olivier Soriani, ChristopheVandier, SébastienRogerb, Denis Angoulvant, FlorenceVelge-Roussel. *Cell Calcium 59 (2016)198–207*. | *David Crottès* | *11* | *C. Vandier, FR WG1, S. Roger, FR WG1, F. Velge-Roussel, FR Chair* | *WG1* | *17/11/2015* | *Accepted 15/02/2016* | *http://www.sciencedirect.com/science/article/pii/S0143416016300112* | *no* | *no* | *no* | *Yes* | *Yes* | *USA partner pre-reviewed the article* | *3,43* |
| 2 | *M1 and M2 Functional Imprinting of Primary Microglia: Role of P2X7 Activation and miR-125b. Mediators of Inflammation Volume 2016, Article ID 2989548, 9 pages http://dx.* | *ChiaraParisi* | *4* | *Chiara Parisi, Italy, STSM recipient, Pablo Pelegrin, Spain V Chair, and Cinzia Volonté Italiy, MC substitute* | *WG1* | *23 /09/2016* | *Accepted 24 November 2016* | *doi.org/10.1155/2016/2989548* | *no* | *Yes* | *Yes* | *Yes* | *Yes* | *STSM of Parisi* | *3.418* |
| 3 | *Involvement of the P2X7-NLRP3 axis in leukemic cell proliferation and,death. Sci. Rep. 6, 26280* | *Erica Salaro* | *16* | *Alba Clara Sarti, Italy STSM recipient, Pablo Pelegrin, Spain, V Chair, Francesco Di Virgilio, Italiy WGL2* | *WG2* | *30/07/2015* | *Accepted: 25 April 2016* | *doi: 10.1038/srep26280 (2016)..* | *no* | *Yes* | *No* | *Yes* | *Yes* | *STSM Sarti* | *5.578* |
| 4 | *UCP2 up-regulation within the course of autoimmune encephalomyelitis correlates with T-lymphocyte activation. Biochimica et Biophysica Acta 1863 (2017) 1002–1012.* | *Alina Smorodchenko* | *8* | *Anne Rupprecht Italy, WG2, Elena E. Pohl, Austria WG2* | *WG2* | *09/10/2016* | *Accepted 23 January 2017* | *http://www.sciencedirect.com/science/article/pii/S0925443917300327* | *no* | *Yes* | *No* | *Yes* | *Yes* | *Meeting exchanges* | *3.66* |
| 5 | *Rat Aquaporin-5 is pH-Gated Induced by Phosphorylation and is Implicated in Oxidative Stress. Int. J. Mol. Sci. 17: 2090, 2016.* | *Claudia Rodrigues* | *8* | *C. Rodrigues, Portugal STSM recipient, Ana Gasparovic, Croatia WG1, G. Soveral, Portugal, WG1* | *WG1* | *28/09/2016* | *06/12/2016* | *doi:10.3390/ijms17122090* | *no* | *Yes* | *Yes* | *Yes* | *yes* | *STSM Rodrigues* | *3.25* |
| 6 | *Yeast aquaporin regulation by 4-hydroxynonenal is implicated in oxidative stress response. IUBMB Life. 2017 Mar 24.* | *Claudia Rodrigues* | *5* | *C. Rodrigues, Portugal STSM recipient, Ana Gasparovic, Croatia WG1, G. Soveral, Portugal, WG1* | *WG1* | *09/01/2016* | *03/03/2017* | *doi: 10.1002/iub.1624.* | *no* | *Yes* | *Yes* | *Yes* | *Yes* | *STSM Rodrigues* | *2.65* |
| 7 | *NLR Proteins, Methods in Molecular Biology 1416, Springer ed.* | *Francesco Di Virgilio Pablo Pelegrin* | *55* | *Anna Rubartelli, WG2, Francesco di Virgilio, WG2 Pablo Pelegrin WG1, Vice Chair* | *WG1 /WG 2* | *16/10/2015* | *15/05/2016* | *http://www.springer.com/series/7651* | *no* | *no* | *no* | *Yes* | *Yes* | *Meeting exchanges* | *0.79* |

[2] MC Member/ MC Substitute/ MC Observer/ WG Member/ Training School Trainee/ STSM Recipient/ Other Action Participant

[3] Open Access is defined as free of charge access for anyone via Internet. Please answer "yes" if the open access to the publication is already established and also if the embargo period for open access is not yet over but you intend to establish open access afterwards.

[4] H2020 Societal Challenges are “Health, demographic change and wellbeing”; “Food security, sustainable agriculture and forestry, marine and maritime and inland water research, and the Bioeconomy”; “Secure, clean and efficient energy”; “Smart, green and integrated transport”; “Climate action, environment, resource efficiency and raw materials”; “Europe in a changing world - inclusive, innovative and reflective societies”; “Secure societies - protecting freedom and security of Europe and its citizens”



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| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 | *P2 receptors in cancer progression and metastatic spreading Current Opinion in Pharmacology 2016, 29:17–25* | *Francesco di Virgilio* | *4* | *Francesco di Virgilio, WG2* | *WG2* | *31 March 2016* | *20 June 2016* | *http://dx.doi.org/10.1016/j.coph.2016.05.001* | *no* | *Yes* | *no* | *Yes* | *Yes* | *Meeting exchanges* | *4.742* |
| 9 | *Extracellular purines, purinergic receptors and tumor growth, Oncogene (2017) 36, 293–303* | *Francesco di Virgilio* | *2* | *Francesco di Virgilio, WG2* | *WG2* | *31 March 2016* | *2 May 2016* | *doi:10.1038/onc.2016.206* | *no* | *Yes* | *no* | *Yes* | *Yes* | *Meeting exchanges* | *7.932* |
| 10 | *Overexpression of STIM1 in neurons in mouse brain improves contextual learning and impairs long-term depression. Biochim Biophys Acta. 2016 Nov 29. pii: S0167-4889(16)30320-2.* | *Luckas Majewski* | *8* | *Luckas Majewski, WG1 Jack Kuznicki WG1* | *WG1* | *28 Sept 2016* | *26 Nov 2016* | *doi: 10.1016/j.bbamcr.2016.11.025.* | *Yes* | *Yes* | *Yes (STSM)* | *Yes* | *Yes* | *STSM Iga Wasilelewska* | *5.343* |
| 11 | *Purinergic signaling in the immune system, Autonomic Neuroscience: Basic and Clinical 191 (2015) 117–123* | *Franceco Di Virgilio* | *2* | *Francesco di Virgilio, WG2* | *WG2* | *02/2015* | *23 Nov 2015* | *doi: 10.1016/j.autneu.2015.04.011* | *Yes* | *Yes* | *no* | *Yes* | *Yes* | *Meeting exchanges* | *1.620* |

***FP7/ H2020 Proposals and projects***

This table contains FP7/ H2020 proposals/ projects spinning off from Action activities and including in the proposing consortium at least three Action participants from at least three different countries participating in the Action.

| NO. | Title | Name and country of main proposer | Number of proposers | Action participants listed among the proposers (Name, country, role[3] in the Action) | Funding agency submitted to | Date submitted | Date results expected | Result | Call identifier | Relevance to H2020 Societal Challenges[4]? | Was the added value of the Action Networking necessary for the proposal / project? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Projects** | | | | | | | | | | | |
| 1 | • PHARMPROT teaming, GINOP-2.3.2-15-2016-00044 project. | Hungary | 1 | Prof. G Panyi Hungary WG1, | co-financed by the European Union and the European Regional Development Fund. | | 2016 | accepted | ERDF | Yes Health, demographic change and wellbeing | |
| 2 | 3-year project grant application | Ruth Murrell-Lagnado (UK) | 2 | Ruth Murrell-Lagnado (UK) Sebastien Roger (France) | Breast Cancer Now | June 2016 | | refused | | | |
| **Proposals** | | | | | | | | | | | |
| | Ion Transport Remodelling in Pancreatic Cancer IonPaC | G. Panyi, Hungary | 2 | G. Panyi, Hungary WG1, I. Novak, Denmark, WG1 | MARIE SKŁODOWSKA-CURIE ACTIONS, | 02/2017 | 08/2017 | | International Training Network | Yes, Health, demographic change and wellbeing | Open to Euroepan grants |
| | 3-year project grant application | Ruth Murrell-Lagnado (UK) | 2 | Ruth Murrell-Lagnado (UK) Sebastien Roger (France) | World Wide Cancer Research (UK) | April 17 | September 17 | | | Yes, Health, demographic change and wellbeing | Building of Collaboration inside of the Action |
| | | | | | | | | | | | |

## I.C. Networking

**Added value of the Networking**

**Joined publications**

Numerous joined publications between Cost Countries

**New Collaboration started**

1, Collaboration with Nace Zidar Univerza v Ljubljani F
2, Collaboration with Iva Bozic, Irena Lavrnja, Universit
3, Collaboration of Katja Ester Croatia with Jost Ludwig
4, Collaboration of Luckas Majesky, Poland with Barab
5, Collaboration of Ruth Murrell-Lagnado, UK with Coli
6, Collaboration of Ruth Murrell-Lagnado, UK with Seb
7, Collaboration of Ruth Murrell-Lagnado, UK with Rair
8, Collaboration of Pablo Pelegrin (Spain) with Frances
Hafner (Slo), Cinzia Volonté (Italy), Sebastien Roger (F
9, Collaboration of Graca Soveral (Portugal) with Ana C
10, Collaboration of N. Demaurex (Swiss) with Christop
on STIM/ORAI

**New projects submitted at national level**

- Hungarian National Science Fund, K119417 Fu
  tumours, obtained
- 3-year project grant applications with R. Murre
  Cancer Now (June 2016) refused
- one 3-year project recently to World Wide Can
- One project from N. Demaurex (Swiss) obtaine
  Scientifique en 2016 (SNF 31003A_16949)
- 2016, “Regulacion del inflamasoma nlrp3: impl
  Programa Estatal de Fomento de la Investigac
  Ministry of Economy and Competitiveness. Na
- 3-year project grant application Barbara Nieme
  from the DFG (FOR2289, 2016-2018)
- 4 year project grant application Barbara Nieme
  immune cell function by the DFG (SFB1027, 2

**New thematic**

Role of Aquaporins in immune cells (Croatia, Poland)
Neuronal inflammatory diseases (Belgrade, Croatia)

**Extent of the networking**

- Interface with BM1305 (A FACTT)
  - We contacted Dr Eva M MARTINEZ-C
    Accelerate Cell-based Tolerance-induc
    participants
- Interaction with BM 1307 ((PROTEOSTASIS)
  - We contacted BMBS 1307 thanks to the C
    people interested by the immune cell them
- Meetings in ITC countries
  - At this date, we organized 4 meetings
    in March 2016, Croatia in September 2
- Invitation of a local speaker in each meeting
  - We have the use to invite one local sp
    which welcome us (see scientific progr

- STSM for the ESR
  - 7 applicants for the STSM came from ITC, 2 from Cost Member Country.
  - 4 STSM are from ITC to CMC,
  - 2 from CMC to ITC
  - 2 frim ITC to ITC
  - 2 in the CMC

- Gender balance in the MC, number of ITC vs CMC
  - MC gender balance 31 women / 56 members = 50%
  - The great majority of the STSM have done by women (7 out 9 STSM from GP1 and GP2)
  - 6 out of 9 STSM have been done from people from ITC to a CMC.

## I.D. Impacts

The impacts that have resulted, or might result from the Action are described in the following table.

| Description of the impact | Type of impact[5] | Timing of impact[6] |
|---|---|---|
| Creating the ERA network<br>• 66 MC members from 26 countries (12 ICT/26 countries)<br>• Trans-disciplinarily network with Biophysics, chemists, immunologists, clinicians | Scientific | Foreseen 5-10 years |
| New resources and tools<br>According the scientific collaborations, new tools have been shared | Scientific | Foreseen within 2 years |
| Fruitful collaborations<br>New collaborations have been build thank to the Action listed in I.C. networking<br>Joined scientific publications | Scientific | Foreseen within 2 years |
| Enabling young scientist to work in excellent European partner laboratories | Scientific, Soft skill and professional advancement | immediate |

## I.E Dissemination and exploitation of Action results

Describe the Action's dissemination and exploitation approach as well as all activities undertaken to ensure dissemination and exploitation of Action results and the effectiveness of these activities.

Add description here

| Item/ activity | Target audience | Result | Hyperlink |
|---|---|---|---|
| Newsletters | Scientists | ¼ on website | http://costbm1406.univ-tours.fr/newsletters/ |
| Dissemination Meetings | Scientists of the same area | 1 in Lecce, Italy | Slides? |

[5] Scientific/ technological, Economic, Societal
[6] Achieved/ Foreseen within 2 years/ Foreseen 2-5 years/ Foreseen 5-10 years/ Foreseen 10+ years



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### I.F. Action success(es)

COST regularly communicates the successes of Actions. At this point in time what aspect(s) (outcomes and/ or impacts, rather than activities) of this Action is/ are the most suitable for communication?

| | |
|---|---|
| The research on Hv1 proton channels financed by COST resulted in the creation of a company (Hplus therapeuDcs) of which Karl-Heinz Krause (Swi) is founder and Nicolas Demaurex (Swi) the advisor scientific. http://ge.ch/hrcintapp/externalCompanyReport.action?companyOfrcId13=CH-660-0246017-1&ofrcLanguage=1 | Dimension of the success<br>■ Breakthrough: technological<br>■ Policy implementation (specify which policy)<br>■ Capacity building |
| | |
| | |

## II. Management Report

### II.A. Overview of expenditure

Insert below in the yellow cells the summary of figures from the Yearly Financial Reports (YFRs) of completed Grant Periods and an IFR of any incomplete Grant Period – the Totals (non-yellow cells) will automatically sum.

| | Grant Period 1 | Grant Period 2 | Grant Period 3 | TOTAL |
|---|---|---|---|---|
| GP start and end dates | (01/06/2015-31/05/2016) | (01/05/2016-30/04/2017) | (01/05/2017-30/04/2018) | |
| Grant Holder institution | GH institution name (country code) | GH institution name (country code) | GH institution name (country code) | |
| Meetings | EUR 53 697,49 | EUR 53 506,29 | - | EUR 107 203,78 |
| Training Schools | EUR - | EUR - | - | EUR - |
| STSMs | EUR 13 250,00 | EUR 4 800,00 | - | EUR 18 050,00 |
| Dissemination | EUR - | EUR 1 325,00 | - | EUR 1 325,00 |
| OERSA[1] | EUR - | EUR - | - | EUR - |
| Total Scientific Expenditure | EUR 66 947,49 | EUR 59 631,29 | - | EUR 126 578,78 |
| | | | | |
| FSAC[2] | EUR 10 042,12 | EUR 8 922,69 | - | EUR 18 964,81 |
| | | | | |
| TOTAL | EUR 76 989,61 | 68 553,98 EUR | - | EUR 145 543,59 |

[1] OERSA = Other Expenses Related to Scientific Expenditure (e.g. bank charges)
[2] FSAC = Amount received by Grant Holder for Financial Scientific and Administrative Coordination



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## II.B. Budget and Participation management

**II.B.1 Budget spent in relation to individuals/ institutions outside participating COST countries**

*STSMs from or to institutions from countries other than Participating COST countries*

We had no activity in this case.

| Grantee | | Host | | Date | Topic and value added to the Action |
|---|---|---|---|---|---|
| Institution | Country | Institution | Country | | |
| Add home institution and country | | Add host institution and country | | Date | Describe topic of the STSM and the added value to the Action |
| Add home institution and country | | Add host institution and country | | Date | Describe topic of the STSM and the added value to the Action |
| Add home institution and country | | Add host institution and country | | Date | Describe topic of the STSM and the added value to the Action |

*Invited Speakers*

The table below highlights the added value of Invited Speakers from COST countries that have not accepted the MoU and/ or non-participating NNC, IPC or Specific Organisations whose participation at a meeting or Training School was reimbursed by the Action.

| Participant name | Institution | Country | Event date | Topic and added value to the Action |
|---|---|---|---|---|
| Thomas de Coursey | Department of Physiology & Biophysics, Rush Medical College,1750 W. Harrison St. Suite 1245 Chicago, IL 60612 | USA | 9-11th March 2016 | BM1406 Lisbon Oral presentation invited by N. Demaurex (Swiss) https://www.rushu.rush.edu/research/departmental-research/physiology-and-biophysics-research/laboratory-tom-decoursey-phd |
| Stefan Feske | Department of Pathology and Cancer Institute NYU School of Medicine, Smilow Research Building 550 First Avenue, New York, NY 10016, USA | USA | 23-24th March 2017 | BM1406 meeting in Belgrade, conference on Channelopathies invited by Ruth Murrell-Lagnado (UK) Event Facebook https://med.nyu.edu/faculty/stefan-feske |

*Dissemination meetings*

The table below highlights the added value of Dissemination Meetings financed from Action funds.

| Participant name | Role | Country | Date | Location | Topic and added value to the Action |
|---|---|---|---|---|---|
| Dr. Anna Rubartelli | speaker | Italy | 4-7 Octobe r 2016 | Lecce, Italy | Unconventional proteins and membrane traffic, Presentation on COST Action (slides) |

## II.C. Participants

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## II.D. Specific matters

This section is confidential to the Management Committee, and the COST Association (Administration, Scientific Committee and Committee of Senior Officials); and is not included in the version of the report that is made publicly available.

| |
|---|
| The Action encountered the following particular difficulties in the implementation of the Action (e.g. imbalances of participation across the Working Groups, inactive country representatives). |
| Describe the issue(s) here or write “no particular difficulties encountered”. |
| no particular difficulties encountered |
| Write explanation here |



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## Annex 1

### Definitions:

| | |
|---|---|
| **COST Action Challenge (main aim)** | "The research question addressed by the COST Action targeting scientific, technological, and / or socioeconomic problems" |
| **COST Action Innovation** | "The creation and / or development of new or improved concepts, products, processes, services, and / or technologies that are made available to markets, governments and society" |
| **COST Action objectives** | "COST Action objectives are the results that an Action needs to achieve in order to respond to meet its challenge. These are SMART (Specific, Measurable, Achievable, Relevant, Timely) and twofold: research coordination objectives and capacity building objectives." |
| **COST Action research coordination objectives** | "Achieving these objectives turns COST Actions from initially scattered teams into one transnational team and leverages the existing funded research. These objectives entail the distribution of tasks, sharing of knowledge and know-how, and the creation of synergies among Action participants to achieve specific outputs." |
| **COST Action capacity building objectives** | "Achieving these objectives entail building critical mass to drive scientific progress, thereby strengthening the European Research Area. They can be achieved by the delivery of specific outputs and / or through network features or types and levels of participation." |
| **COST Action networking activities** | "any activities organised by the COST Action (whether or not directly funded by COST) in order to achieve research coordination and capacity building objectives." |
| **COST Action networking tools** | "instruments through which eligible activities can be funded" |
| **COST Action outputs** | "direct results from the COST Action activities. These can be codified knowledge, tacit knowledge, technology, and societal applications." |
| **COST Action impact** | "the short- to long-term scientific, technological, and / or socioeconomic changes produced by a COST Action, directly or indirectly, intended or unintended." |
| **COST Action deliverable** | "a distinct, expected and tangible output of the Action, meaningful in terms of the Action's overall objectives such as a report, a document, a technical diagram, a software etc. Action deliverables are used to measure its progress and success." |
| **COST Action milestones** | "Control points in the Action that help to chart progress. They are also needed at intermediary points so that, if problems have arisen, corrective measures can be taken. A milestone may be a critical decision point in the Action where, for example, the MC must decide which of several technologies to adopt for further development (e.g. core group and MC meetings, mid-term reviews)" |
| **Inclusiveness Target Country (ITC):** | Current COST Member Countries targeted by the COST inclusiveness Policy ("Inclusiveness Target Countries" (ITC)): EU 13 (Bulgaria, Cyprus, Czech Republic, Estonia, Croatia, Hungary, Lithuania, Latvia, Malta, Poland, Romania, Slovenia, Slovakia), EU candidate countries (the former Yugoslav Republic of Macedonia, Montenegro, Republic of Serbia, Turkey) and potential EU candidate countries (Bosnia and Herzegovina). In addition, to comply with the EC criteria for 'Spreading Excellence and Widening Participation', Portugal and Luxemburg are included. |



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