



COST ACTION FA1301

A network for improvement of cephalopod welfare and husbandry in research, aquaculture and fisheries (Cephs/InAction)

Minutes of the 2nd Management Committee Meeting

Hesperia del Mar - Barcelona, Spain

16 March, 2014

1 Welcome to participants

The second MC meeting of the Action FA1301 was held in Barcelona, Spain at Hotel Hesperia del Mar. Dr Giovanna Ponte, Chair of the Action, welcomed the participants. Dr Ponte chaired the meeting. The copy of the attendance list is given in **Annex 1**. Since the representative Members from Ireland did not attend the MC meeting, 13 parties out of 14 were present; therefore, the necessary quorum was achieved.

2 Adoption of the agenda

The agenda of the meeting was adopted (**Annex 2**).

3 Approval of minutes and matters arising of last meeting

The minutes of the last meeting (1st MC meeting), and the Work-Budget Plan of the first year were approved unanimously by e-voting initiated on 26/11/2013. Written notice of the approval was sent on 06/12/2013.

The Grant Holder was approved unanimously by e-voting initiated on 27/11/2013; written procedure of the approval was sent on 09/12/2013.

4 Update from the Action Chair

4.a Status of the Action, including participating countries

Dr Ponte reported that the Action now included 14 Parties, bringing 3 more countries (Austria, Croatia and Malta) to Ceph/InAction to the 11 included at the time of the last meeting. In addition, another country (Turkey) asked to join our Action and National Coordinator for that country has been contacted.

4.b Action Budget Status

Dr. Ponte informed the MC that no money had been used from budget at the time of the meeting, and the first scientific Meeting (WG and MC) in Barcelona would be the first Action expenditure.

4.c STSM Status

For the first year of the Action, there is budget available to allocate 5 STSMs. It was agreed to launch the call for STSMs via email immediately after the Meeting; the present deadline for the call is May 10, 2014.

Depending on the budget prediction after the evaluation of the applications for the first call, further STSMs may be supported for this first year of the Action.

In addition, since the grant period of this year will end by November 2014, the Management Committee agreed to support STSMs' that will be completed by September 2014.

5 Promotion of Gender Balance and of Early Stage Researchers (ESR)

Dr Ponte reported that at the moment the Gender Balance of the MC is 10/34 (F/M; 29.4%); however, the proportion of females exceeds 30% of the registered participants of the five Working Groups of FA1301.

The Action will continue to promote participation of both sexes.

In addition, the Chair is pleased to note that several early stage researchers are involved in the working groups; again, attention will be paid to promote active participation and involvement of ESRs.

6 Update from the Grant Holder

Dr Ponte, as representative of the no-profit organization CephRes, the Grant Holder of FA1301, explained that the delay in sending the official invitation was due to administrative problems in the finalization of the contract.

However, the Legal Representative of CephRes - in order to minimise delays in the organisational process, and in planning the first scientific meeting scheduled for March 2014 - signed a Legal Disclaimer on 19/02/2014 on the basis of which the COST Office in Brussels issued a green light.

The official notification of the final signature was sent to the Grant Holder on 01/03/2014.

Dr Ponte presented a Logo for FA1301 ([Annex 3](#)) Action, which was approved by the Management Committee of the Action.

Dr. Ponte noted also that the website of the Action should be available by April, 2014.



7 Update from the COST Office

The Management Committee was informed that there was no update from the COST Office.

8 Update from the DC Rapporteur

The DC Rapporteur (Professor Anders Kiessling) was not able to take part in this meeting due to other business.

The Chair have informed the DC Rapporteur of the planning and current activities. No other update from the DC Rapporteur is available.

9 Annual Progress Conference

Dr Ponte informed the Management Committee of FA1301 that the next Annual Progress Conference of the COST Food and Agriculture Domain would be held in Plovdiv, Bulgaria, from 28th to 30th April, 2014.

For Actions that started in autumn 2013 or spring 2014, there is no need to submit an Action's progress report. Only a presentation (5 minutes presentation + 5 minutes discussion) will be delivered. Dr Ponte informed the MC that she will attend to the APC meeting next April.

10 Follow-up of MoU objectives

10.a Progress report of working groups

A short outline of the outcome of the WG meeting held in Barcelona (Spain) on March 14 and 15, 2014 is given in [Annex 4](#).

Since the MC Meeting followed the WG meeting, the Chair asked to Leaders or Vice Leaders of the five WGs to give a short report of the outcome of the WG Meeting held in Barcelona, Spain at the same location on March 14-15, 2014.

The MC discussed the outcomes of the Working Groups meeting, summing up the plans and possible developments of the activities of each working group (see also #11 of this minute). Problems and questions that arose during the meeting were discussed and solutions agreed. Synergies between WGs should be encouraged and will be facilitated.

11 Scientific Planning

11.a Scientific Strategy

As indicated in the MoU, key to the activities of FA1301 is the availability of Guidelines for the Care and Welfare of Cephalopods in Research; the document is it



its final draft form and submitted to the steering committee for final verification and submission for publication. However, and pertaining to CephsInAction activities is also the recently published review “Cephalopods in neuroscience: regulations, research and the 3Rs” (Inv. Neurosci., 14: 13-36, 2014)”.

The following summaries of primary activities have been agreed for the first year by the five WGs.

Working Group 1: Research needs in cephalopods welfare

Leader: Michael Kuba (DE) - Vice-Leader: Antonio Sykes (PT)

The main topic of the first year will be the development of husbandry guidelines for cephalopods and improvement of experimental practices. As first step an assessment of the species utilized and numbers of cephalopods kept both in scientific institutions and in public aquaria and zoos will be carried out. This will also allow us to verify and standardize and improve, if necessary, maintenance protocols for animals in both regulated facilities (i.e. scientific institutions), and in zoos and public aquaria. The data will be collected by an online questionnaire to be compiled upon invitation. This online questionnaire will be coordinated with other WGs to maximize returns and minimize repeated communication with people involved.

Working Group 2: Stress and Diseases

Leader: Camino Gestal (ES) - Vice-Leader: Sarah Culloty (IR; absent)

It has been recognized that the knowledge about cephalopods diseases, stress detection and immune response is scarce; the major aims of the first two years are as follows:

- *Literature review and compilation of unpublished data on fundamental knowledge of stress, pathogens and diseases.*
- *Identification of potential pathogens (virus, bacterial, protozoan and metazoan parasites), as well as mechanical damages and signs of stress.*
- *The improvement and implementation of existing protocols and experimental practices for maintenance, pathogen identification, diseases evaluation, identification of distress, pain and suffering, as well as immune-response capability.*
- *The development of an atlas of pathogens and histopathology in cephalopods.*
- *The study and assessment of the health status and well-being of cephalopods, including stress conditions, pathogen identification, diseases diagnosis, and immune-response capability. Identification of welfare indicators.*
- *Selection of the best signs and/or biomarkers using non-invasive approaches at physiological and molecular level.*
- *The establishment of the most suitable protocols for prevention and treatments, if applicable.*

All the results will be collated in a scientific publication.

Activities of this WG will help to the establishment of the best experimental practices, and together with WG4, to the establishment of a Cephalopod Welfare Index, as established in the MoU of the FA1301 Action.

Working Group 3: Neurophysiology, Anaesthesia and Humane end-points

Leader: Binyamin Hochner (IL; absent) - Vice-Leader: Panagiotis Grigoriou (GR)

The following deliverables are proposed:

1. To summarize the current experimental approaches in physiological and behavioral experiments through analysis of the literature and questionnaires to be circulated within and outside FA1301 community.
2. Concerning the behavior and physiology of various cephalopod species of different ages we should define, with regard to anesthesia, the following aspects: Normal, attentive, sleeping behaviors; response to aversive stimuli and reinforcement; measure of stress and nerve and brain activities; response/presence of nociceptors and to reflexes.
3. To assess the procedures and protocols for euthanasia.

Based on this summary the WorkGroup will evaluate these procedures in accordance with the MoU proposed criteria. A workshop will be organized where the various experimental methods will be reviewed and discussed by the relevant researchers.

The WG 3 will cooperate with pain/nociception experts and anesthesiologists irrespective of their membership in this COST action. Based on the participants' recommendations, a concluding document will be generated that will specify which methods should be abandoned in future studies in favour of the ones that will be recommended by the members of the COST Action FA1301.

Working Group 4: Development of a Welfare Index

Leader: Lars Helge Stien (NO) - Vice-Leader: Benjamin Costas (PT; absent)

The working group's overall objective is to develop a Cephalopod Welfare Index (CWI) - model to assess the welfare status of cephalopods. During the meeting it was decided that the action will first concentrate on making two separate indexes; one for common octopus (*Octopus vulgaris*) and one for common cuttlefish (*Sepia officinalis*). These species were considered to be most relevant at the moment in a European context. It was also decided that the indexes should be aimed for the tank conditions usual at research facilities. This is both because the available scientific literature is about these conditions, and because they will be most relevant to the participants in the COST-action.

The first goal or milestone of WG4 is to create an internet based database for creating the CWIs. A first version of this database had been made available before the meeting. During the meeting the database application was demonstrated and discussed. It was requested that a manual/primer should be made to facilitate fast adoption of the database by the action participants. It was decided that we should start to populate the database with statements from the literature that are relevant to assess the fulfilment of the welfare needs of common octopus and common cuttlefish as soon as possible. The goal should be to allow a first attempt to use the database to create a welfare index before the next meeting, both so that the participants become familiar to the methodology, and to assess how well it is likely to work.

Working Group 5: Education and training

Leader: Nadav Shashar (IL) - Vice-Leader: Ludovic Dickel (FR; absent)

Work Group 5 focuses on information dissemination: training, workshops, education material, etc. During the meeting it was discussed and decided that:

WG5 will need to disseminate data generated by the other workgroups. Therefore it calls upon each WG to assign a specific person as joint member and an ambassador to WG5.



The target audience and stakeholders of the COST action include: scientists working in the field, veterinarians interested in the topic, managers and operators of cephalopod scientific holding facilities, supervising and authorizing entities, aquariums and operators of large public display facilities having cephalopods, general public.

Training school - the first training school will be aimed at veterinarians and laboratory managers. It is suggested that will take place in Naples, Italy, most likely in early September 2014. It is intended that the training school will be accepted as part of FELASA's training program. The detailed topics to be taught will be collected during the coming month. Each training school will be also used to gather video and other material for future dissemination.

Workshops. WG5 petitions the COST action management to have three workshops during the lifetime of the program. The topic of the first workshop was proposed to be "natural life history and behaviour of cephalopods, and the implications to cephalopod holding in captivity". The outcome of each workshop should include a report as well as scientific publications.

Information gathering. WG5 will gather information as to what knowledge is needed by the different groups of the target audience for their operation, and also for their accreditation.

Educational material. WG5 will gather existing education material (videos, detailed PowerPoint presentations, etc.) that could be used in teaching anatomy, physiology, etc at university level, as well as procedures for different scientific activities. This will be done towards promoting and improvement the teaching of cephalopods and their use in science, while at the same time reducing the number of animals used for these tasks.

Dedicated software. WG5 will examine the feasibility of developing electronic material to assist in all levels of university level education.

11.b Action Budget Planning

The Chair suggested that any money saved, from Meeting budget, could be used for STSMs and Training School. The MC agreed.

11.c Long-term planning (including anticipated locations and dates of the future activities)

Dr Ponte suggested better defining these topic via email after the Meeting. The option to have both Training School and WGs and MC Meetings in Italy was welcome from the MC.

11.d Dissemination planning (Publications and outreach activities)

Dr Ponte reported that two special issues have been recently published (as open access) as an outcome of the meetings of the cephalopod scientific community organized before the start of this COST Action; in addition, a review paper on best practice and (Cephalopods in neuroscience: regulations, research and the 3Rs) recently appeared in the scientific literature. Dr Ponte also mentioned that Dr Fiorito (IT) and Professor P. Andrews are working on the finalization of the first version of the Guidelines (Guidelines for the Care and Welfare of Cephalopods in Research) that represent a landmark for the scientific community at large, and is the foundation of the activities of this COST Action. Is expected that the final version of this work will



be available open access to the community and that other dissemination activities will be shortly announced through the FA1301 Action website.

Dr Ponte also suggested that a further dissemination plan will be presented and discussed via email after the Meeting.

12 Request for new members

Turkey has asked to join. Dr Ponte reminded that since we are still in the first year of the Action, new countries could join without requiring approval of the MC.

MC members have been invited to disseminate our Action to colleagues in order to facilitate the joining process and increase the number of participants (currently more than 100) and of Parties.

13. Non-COST application to the Actions

There have been no request to the date.

14 Any Other Business

None.

15 Location and date of next meeting

The next meeting will be in September 2014. The MC approved the idea of the Chair and Vice-Chair to consider Naples (Italy) as the venue for the next meeting.

16 Summary of MC Decisions

The summary of the MC decisions are represented by these minutes.

17 Closing

Dr. Giovanna Ponte thanked everyone for their participation.

Giovanna Ponte
16 March 2014



Annex 1

MC Meeting Barcelona March 16, 2014

Attendance List

Country	Title	First Name	Last Name	Email
Spain	Dr	Eduardo	Almansa	eduardo.almansa@ca.ieo.es
France	Dr	Marie-Laure	Begout	mlbegout@ifremer.fr
Malta	Prof	Carlos A.	Espinal	cae@aquabt.com
Italy	Dr	Graziano	Fiorito	graziano.fiorito@szn.it
Netherlands	Dr	Dieter	Fuchs	dfuchs@visualsonics.com
Spain	Dr	Camino	Gestal	cgestal@iim.csic.es
Greece	Dr	Panagiotis	Grigoriou	pgrigoriou@hcmr.gr
Norway	Dr	Tore S.	Kristiansen	torek@imr.no
Germany	Dr	Michael	Kuba	michael.kuba@brain.mpg.de
United Kingdom	Prof	Daniel	Osorio	D.Osorio@sussex.ac.uk
Portugal	Prof	Rodrigo	Ozorio	rodrigo.ozorio@ciimar.up.pt
Greece	Dr	Michael	Pavlidis	pavlidis@biology.uoc.gr
Croatia	Dr	Mirela	Petric	mpetric@unist.hr
Germany	Prof	Hans-Joachim	Pflueger	pflueger@neurobiologie.fu-berlin.de
Italy	Dr	Giovanna	Ponte	g_ponte@cephalopodresearch.org
Israel	Prof	Nadav	Shashar	nadavsh@bgu.ac.il
Norway	Dr	Lars Helge	Stien	larshe@imr.no
Portugal	Dr	Antonio	Sykes	asykes@ualg.pt
Austria	Prof	Andreas	Wanninger	andreas.wanninger@univie.ac.at
Italy	Dr	Letizia	Zullo	letizia.zullo@iit.it
United Kingdom	Dr	Sarah	Zylinski	s.zylinski@leeds.ac.uk



Annex 2

MC Meeting Barcelona March 16, 2014

Agenda of the meeting

1. Welcome to participants
2. Adoption of agenda
3. Approval of minutes and matters arising of last meeting
4. Update from the Action Chair
a. Status of Action, including participating countries
b. Action budget status
c. STSM status
5. Promotion of gender balance and of Early Stage Researchers (ESR)
6. Update from the Grant Holder
7. Update from the COST Office
8. Update from the DC Rapporteur
9. Annual Progress Conference (preparation)
10. Follow-up of MoU objectives
a. Progress report of working groups
11. Scientific planning
a. Scientific strategy
b. Action Budget Planning
c. Long-term planning (including anticipated locations and dates of future activities)
d. Dissemination planning (Publications and outreach activities)
12. Requests for new members
13. Non-COST applications to the Actions
14. AOB
15. Location and date of next meeting
16. Summary of MC decisions
17. Closing

Annex 3

MC Meeting Barcelona March 16, 2014

Cephs*In*Action LOGO



Annex 4

CephsInAction First Scientific Meeting

Barcelona – Spain (March 14-15, 2014)

The COST FA1301 scientific meeting, held in Barcelona, Spain, in March 14th-15th, started in the afternoon of Friday 14th of March, after a welcome lunch.

After a short introductory speech delivered by the Chair of the Action, Dr. Giovanna Ponte, and the Vice Chair, Prof. Daniel Osorio the meeting started including: i. Scientific presentations (oral and posters); ii. Introduction to Working Groups aims and activities; iii. Working Group discussions and planning.

i. Scientific Presentations (oral)

listed in alphabetical order by presenting Author

- E. **Almansa** (Spain) - Nutritional physiology and stress of the first life stages of common octopus (*Octopus vulgaris*)
- C. **Bellanger** (France) - Brain and behaviour ontogenesis of the cuttlefish *Sepia officinalis*: impact of environmental pollution by pharmaceutical residues
- J. **Cerezo Valverde** (Spain) - Optimal water quality parameters for common octopus (*Octopus vulgaris*) maintenance
- A. **Dröscher** (Italy) – Cephalopods as model organisms: historical and theoretical reflections.
- J. **Estefanell** (Spain) – Common octopus culture: 10 years of research in the Aquaculture Research Group (Las Palmas, Canary Islands, Spain)
- C. **Gestal** (Spain) - Pathogens and immune response in common octopus *Octopus vulgaris*
- M. **Kuba** (Germany) - Minimizing invasive procedures by controlling the task environment of the octopus
- R. **Ozorio** (Portugal) - In search of Ocean Knowledge and Sustainability
- J. **Pereira** (Portugal) - What we do to kill an octopus (*Octopus vulgaris*)
- M. **Petric** (Croatia) - Biology of *Illex coindettii* (Verany, 1839) (Cephalopoda: Ommastrepidae) in the Eastern Adriatic Sea
- G. **Petrosino** (Italy) - The transcriptome as a tool for discovery the molecular secrets of *Octopus vulgaris*
- D. **Quintana** (Spain) - Study of the main factors influencing Hatchling quality in oceanic squids: maternal and environmental effects
- T. **Shomrat** (Israel) - Possible role for Serotonine and Octopamine as specific signals, during reinforcement learning, in the vertical lobe of *Octopus vulgaris*
- A. **Sykes** (Portugal) - Research in European Cuttlefish Aquaculture and Welfare at CCMAR: An Overview
- R. **Villanueva** (Spain) – Care and welfare of egg masses and hatchlings of cephalopods: an introduction
- A. **Wanninger** (Austria) - Cephalopods as model in EvoDevo



i. Scientific Presentations (oral) – focus on Guidelines for Care and Welfare of Cephalopods in Research

L. **D'Angelo** (Italy) – Guidelines for the Care and Welfare of Cephalopods in Research

V. **Galligioni** (Italy) – Working on Cephs' Facilities

M.L. **Begout** (France) – The process of transposition of Directive 2010/63/EU in France

i. Scientific Presentations (poster)

listed in alphabetical order by presenting Author

J.Cerezo Valverde	Spain	Development of formulated feeds for common octopus
R. Covadonga	Spain	In vivo Metabolism of Unsaturated Fatty Acids and Lipid Classes in <i>Octopus vulgaris</i> Hatchlings
J.C. Navarro	Spain	Polyunsaturated Fatty Acids Biosynthesis in the Common Octopus (<i>Octopus vulgaris</i>)
J.C. Navarro	Spain	Studies on the Characterisation of Biomarkers of Nutritionally-Derived Stress in Paralarval Cultures of The Common Octopus (<i>Octopus vulgaris</i>)
M. Noedl	Italy	Expression of Acetylcholinesterase during development and regeneration in the cephalopod mollusk <i>Octopus vulgaris</i> : Indications for a 'Non-Classical' Role
R. Ozorio	Portugal	Immune responses and growth performance of Senegalese sole (<i>Solea senegalensis</i>) fed diets supplemented with different probiotics
K. Perkins	UK	Cuttlefish Motion Camouflage during predation
J. Quinteiro	Spain	Apps for Octopus DNA: Molecular systematics, phylogeography and mating assessment
M. Semedo	Portugal	Common octopus (<i>Octopus vulgaris</i>) as a new bioindicator species for coastal pollution monitoring
N. Shashar	Israel	Camouflage in motion: characteristics of <i>Sepia officinalis</i> camouflage during movement
A. Tomás Vidal	Spain	Looking for an optimal extruded diet for <i>Octopus vulgaris</i>
A. Tomás Vidal	Spain	Inclusion of squid meal in extruded diets for <i>Octopus vulgaris</i>
A.L.Turchetti-Maia	Israel	LTP Induction in the vertical lobe (VL) of octopus and cuttlefish is mediated by nitric oxide (NO)

ii. Introduction to Working Groups aims and activities

Working Groups Leaders briefly introduced the aims and goals of the different WGs. They explained the work methodologies they suggested to adopt, and the time planning of the work of the WGs in the future

M. Kuba (Germany) - WG1 - *Research needs in cephalopod welfare*

C. Gestal (Spain) - WG2 - *Stress and diseases*



T. Shomrat¹ (Israel) - WG3 - *Neurophysiology, anesthesia and humane end points*

L. Stien (Norway) - WG4 - *Development of a cephalopod welfare index*

N. Shashar (Israel) - WG5 - *Education and training*

In addition two Members of the Management Committee of CephInAction gave presentation on the activities of interest of the Companies they work for; activities that provide a contribution to the COST Action FA1301:

D. **Fuchs** (The Netherlands) – Visualsonics

C. **Espinal** (Malta) – ABT Innovia as an R&D service provider to the industry

iii. Working Groups discussion and planning.

After parallel sessions of WGs the meeting finished with a report by Working Group Leaders to all participants. During the report WG Leaders a short outline of the working plan was presented and after discussion on the topics arising from the report the meeting was officially closed.

Reports from different WGs will be available through CephInAction website.

¹ Dr T. Shomrat substituted Dr. B. Hochner that was not attending the Meeting due to a last minute issue in his travelling