Version 2015-06-12

COST Action TD1101
(18/11/2011 –17/11/2015)

A Collaborative European Network on Rabbit Genome Biology (RGB-Net)

FINAL ACHIEVEMENT REPORT
(18/11/2011 –17/11/2015)

This report on the full lifetime of the Action is submitted by the MC Chair on behalf of the Management Committee.

Confidentiality: the document will be made available to the public via the Action page on the COST website except for Section II.D.

Executive summary of the Achievement Report:

The main aim of RGB-Net was to establish a multidisciplinary and cooperating network of experts in different research and applied fields interested in developing new scientific and commercial opportunities, resources and tools from the European rabbit (Oryctolagus cuniculus) genome and to strengthen and consolidate Europe as a leader in the scientific and economic exploitation of the European rabbit and related species. RGB-Net was divided in four working groups focusing their activities in different research areas in which rabbit genome biology is relevant. The research question addressed RGB-Net targeted mainly scientific and technological problems defining new knowledge and potential applications to ensure in a medium/long term period economic advantags from the exploitation of genomic information in the European rabbit and related species. In particular, the refinement of the Oryctolagus cuniculus genome and the development of a commercial SNP genotyping tool in this species has opened new research opportunities and applications to manage rabbit genetic resources, for additional QTL studies in this species (that are just at the beginning and in their infacy, compared to what has been produced in other livestock species) and for the introduction of genomic selection programmes in rabbit breeding programmes. In addition, novel tools and new knowledge in this species have created new opportunities to further investigate the rabbit as animal model and for biotechnology applications. RGB-Net coordinated the development of an international network in wild lagomorph that generated the Lagomoprh Genomics Consortium (LaGomiCs) which has as main aim the sequencing of the genome of all species of the Lagomoph order. LaGomiCs was developed in cooperation with the World Lagomorph Society and the Lagomorph Specialist Group that gather together all specialist in lagomorph biology of the world. The multidisciplinary network created by RGB-Net provided the opportunities to present a large number of research projects including working group members. For example, for the first time, research activities in rabbit genetics have been funded in a EU cooperation project (Feed-a-Gene). A total of 41 Short Term Scientific Missions have been funded. About 58% of STSMs were granted to females, fully addresseing gender policies of the Action. Average age of funded applicants was about 35 years, that means that Early Stage Researchers (ESRs) were directly involved in exchange programmes, ensuring a long term impact of cooperating activities across Europe. COST Member Countries targeted by the COST inclusiveness Policies involved in RGB-net were 11 out of a total of 21 different countries. All deliverables defined in the MoU were appropriately addressed achiving most of the expected results. This is particularly relevant considering the very poor level of research funds available in this species for reseach activities in Europe, compared to what is available for other livestock species. Despite the paucity of funds, through networking activities, RGB-Net was able to strengthen the position of Europe as leader in research activities in genomics and biology and in the European rabbit and related wild species. This leadership will grant a long term impact in this sector.

Summary assessment of outcomes and impacts by Action Rapporteur:

The RGB-Net successfully established a network of experts of different research disciplines and fields (breeders, geneticists, bioinformaticians, physiologists, evolutionists, embryologists, immunologists, industry experts, etc.) in order to coordinate European research and commercial opportunities, resources and tools related to the European rabbit (Oryctolagus cuniculus). RGB-Net was divided into four working groups dedicated to i) the refinement of the European rabbit genome resource and the development of genome-

based platforms, ii) genetic aspects in meat, fur and pet rabbits and biodiversity resources, iii) the rabbit as a model in basic biology and human diseases and as a tool for biotechnology applications and iv) genetic and comparative genomic aspects for the study, exploitation and management of wild lagomorphs. Main actions concern the coordination of activities to explore the Oryctolagus cuniculus genome and to promote the development of a commercial SNP chip. Related high ranking publications were achieved and a SNPchip was established that will be distributed by one of the global acting companies in genomics. The RGB-Net successfully contributed to a new H2020 project (Feed-a-Gene). RGB-Net facilitated the establishment of an international network aiming at sequencing of the genome of all species of the Lagomorph order, the Lagomorph Genomics Consortium (LaGomiCs) cooperating worldwide with the World Lagomorph Society and the Lagomorph Specialist Group. A number of research projects involving working group members were created due to the RGB-Net collaboration. The COST Action was very successful in providing training opportunities in form of training workshops as well as Short Term Scientific Missions (n=41). The RGB-Net COST Action fulfilled almost all deliverable to completion and provided tools and knowledge that will have a long-term positive impact on the European research of rabbits. The overall aims of the COST Action – building a productive interdisciplinary network – was achieved. Moreover, particular steps within the network were successfully addressed: publications and online-resources about the rabbit genome assembly and annotation were provided, a 200k SNP-chip was developed, an extended consortium towards genomic analyses of lagomorph species was established, training and dissemination of knowledge was convincingly considered by training opportunities, conferences contributions, database construction and publications. All working groups contributed to the success. WG1 provide new knowledge and novel tools related to genetics and genomics; WP2 addressed novel breeding opportunities, WP3 systematically explored the option to used rabbits as biomedical models and WP4 has initiated comparative studies among lagomorphs. The COST Action was a key factor for the establishment of project on the national and bi-national levels as well as across Europe.

It is obvious that the COST Action was essential in order to enable the European collaboration by facilitating contacts and scientific exchange and the budget was spent accordingly for meetings, workshops, training schools and STSMs.

COST is supported by
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Horizon 2020

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I. Achievement Report

I.A. COST Action Profile

Objective/ Aim

The European rabbit (Oryctolagus cuniculus) is a key species in biology. Basic discoveries have been made investigating this mammal whose genome has been recently sequenced. The rabbit is a livestock, an animal model, a wild resource, a pest and a fancy animal and comprises a large number of breeding stocks/lines. This Action will bring together experts in all rabbit research areas and in other complementary research fields (breeders, geneticists, bioinformaticians, physiologists, evolutionists, embryologists, immunologists, industry experts, etc.) in order to facilitate the transition of rabbit genomic information from experimental data into usable benefits and applications by means of networking expertise. Four Working Groups will be focused on i) the refinement of the European rabbit genome resource and the development of genome-based platforms, ii) genetic aspects in meat, fur and pet rabbits and biodiversity resources, iii) the rabbit as a model in basic biology and human diseases and as a tool for biotechnology applications and iv) genetic and comparative genomic aspects for the study, exploitation and management of wild lagomorphs. The outcome is a coordination of rabbit research activities and a transfer of knowledge which will produce a strong European added value across a broad spectrum of biology research fields.

Details

MoU:	4139/11	Start of Action:	18/11/2011
CSO approval date:	17/05/2011	End of Action:	17/11/2015

COST Member Countries and Cooperating State having accepted the MoU

Parties

Country	Date	Country	Date	Country	Date	Country	Date
Austria	09/02/2012	Bulgaria	05/07/2011	Croatia	14/10/2011	Czech Republic	08/07/2011
Finland	09/08/2011	France	12/08/2011	Germany	28/06/2011	Greece	02/08/2011
Hungary	15/06/2011	Ireland	21/08/2012	Italy	22/06/2011	Poland	14/03/2012
Portugal	21/06/2011	Serbia	08/06/2011	Slovakia	10/01/2012	Slovenia	08/06/2011
Spain	30/08/2011	Sweden	16/09/2011	Turkey	13/04/2012	United Kingdom	21/06/2011
fYR Macedonia	27/01/2012						

Total: 21

Intentions to accept the MoU

Country	Date	Country	Date	Country	Date	Country	Date

Total: 0

Other participants:

Institution Name	Country
Copy from Action page on COST website	

Contacts

Chair/ Vice Chair

Position	Name	Contact details	Country	Date of PhD:	Gender

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Chair:	Luca Fontanesi	Department of Agricultural and Food Sciences, University of Bologna, Viale Fanin 46, 40127 Bologna, Italy. Tel: +39 051 2096535, e-mail: luca.fontanesi@unibo.it	Italy	1997	M
Vice Chair:		Hervé Garreau, INRA Herve.Garreau@toulouse.inra.fr	France		M

Working Group Leaders

WG#	WG Title	WG Leader	Country	Date of PhD:	Gender	Number of participants
1	Refinement of the European rabbit genome resource and development of genome-based platforms	Claire Rogel-Gaillard	France		F	30
2	Genetics in meat, fur and pet rabbits and biodiversity resources	Miriam Piles	Spain		F	40
3	The European rabbit as a model in basic biology and human diseases and as a tool for biotechnology applications	Zsuzsanna Bosze	Hungary		F	50
4	Genetics and comparative genomic aspects for the study, exploitation and management of wild lagomorphs	Carl-Gustaf Thulin	Sweden		M	25

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

Position	Name	Country	Date of PhD:	Gender
STSM leader	Ino Curik	Croatia		M

Action website:	http://www.biocomp.unibo.it/rabbit/

I.B. Achievement of MoU objectives and deliverables and additional outputs

MoU objectives

MoU objective	Achieved Yes/ Partially/ No	Evidence of (partial) achievement
Main / Primary Objectives		
The aim of this Action is to establish a multidisciplinary and cooperating network of experts in different research and applied fields interested in developing new scientific and commercial opportunities, resources and tools from the European rabbit genome and to strengthen and consolidate Europe as a leader in the scientific and economic exploitation of the European rabbit and related species.	Yes	A few links may explain, as examples, what has been achieved by the COST Action. More details are indicated below. http://www.biocomp.unibo.it/rabbit/ http://biocomp.unibo.it/lagomics/ http://science.sciencemag.org/content/345/6200/1074.long The impact of RGB-Net can be only partially measured considering the results achieved during the 4 years of the COST Action. Its impact will continue to develop results in the next years. It should be also considered that the rabbit is a neglected species in term of research funds compared to other livestock species or other animal models. Therefore, what has been achieved by the COST Action should be measured considering also this issue. During the COST Action, for the first time in the history of cooperation programms funded by EU (e.g. FP programs), a cooperation project in H2020 included activities in rabbit (Feed-a-Gene project: http://www.feed-a-gene.eu/). Europe has been strengthen its leadership in rabbit biology and related fields. This is recognized by the large number of papers published having as main subject the rabbit with authors from European countries.
Secondary Objectives		
to improve the annotation and assembly of the European rabbit genome	Yes	A few papers on the annotation of specific genomic regions have been published. Please see for example: http://link.springer.com/article/10.1007%2Fs00251-013-0722-9. A new assembled genome version has been produced using PacBio sequencer. The new assembled version will be published in 2016 by Miguel Carneiro and Leif Andersson.
to promote the development and exchange of genomic tools based on this resource	Yes	A SNP chip including about 200K SNPs has been developed and will be commercialized by Affymetrix starting in 2016.
to establish a first systems biology platform for this species	Partially	A higher level approach of systems analysis within experts involved in the different WGs has been carried out to first develop an expertise network of the COST Action. Additional activities have not been carried out – considering the low level of funds available in this species.
to obtain an improved comparative genome view across lagomorphs	Yes	The Lagomorph Genomics Consortium (LaGomiCs) has been created. It main aim is to sequence the genome of all Lagomorph species in a period of 5 years after the end of the COST Action. http://biocomp.unibo.it/lagomics/

		A perspective paper has been just accepted in Journal of Heredity. Please see attached document indicated in Annex 2 (file esw010.pdf).
to disseminate the potential role of genomic and post-genomic applications in all rabbit biology fields and transfer of knowledge to interested parties	Yes	Four training schools have been organized by RGB-Net, one for each WG. http://www.biocomp.unibo.it/rabbit/training-schools.php Meetings have been attended by representatives of rabbit breeding industries
to develop new approaches in rabbit breeding and in wild species management	Partially	A training school was organized by WG2 on genomic selection in rabbit breeding http://www.biocomp.unibo.it/rabbit/training-schools.php It was difficult to develop specific programmes in wild lagomorphs, considering the state of the art and the poor genomic information available at the beginning of the COST Action. For this reason we developed the LaGomiCs to overcome these limits and to establish scientific bases for further developments in this field.
to foster studies in basic and applied biology fields using the European rabbit, considering the strengths and limits of this species compared to the rodents	Yes	A preliminary database has been drafted including information on rabbit models http://rabbit.biocomp.unibo.it/rabbit/ Several publications has been produced on the rabbit as animal model in basic and applied research fields. A Master thesis in Bioinformatics at the University of Bologna (expected in 2016) will investigate differences between the rabbit and mouse genome.
to better investigate the potential of the European rabbit as a model for human diseases based on the exploitation of genomic information	Yes	Please see the comment above. Examples of a few pubblications related to this objective: http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0093750 http://www.eurekaselect.com/120531/article#
to better define the role of the European rabbit in biotechnology applications and explore new avenues for its exploitation in this area	Yes	A specific training school has been organized by WP3 on biotechnology aspects (http://www.biocomp.unibo.it/rabbit/training-schools.php) and a working group meeting was organized to foster biotechnology applications in rabbits. The meeting was focused on "Rabbit ES and iPS cells as basic biology model and rabbit models of diseases“ and was held in Godollo (Hungary), 26-27 March 2013.
to stimulate collaborative plans and research activities among complementary research fields;	Yes	A survey with the expertise of scientists involved in the activities of the four WGs was initially defined to identify links and complementary research experiences/activities – http://bit.ly/1exDjLj
to promote the rapid transfer of innovations to end-users	Partially	The paucity of industries working with rabbit as the main focus of their business has reduced the immediate transfer of innovations achieved by groups involved in WG activities.

to coordinate research efforts in different rabbit applied biology areas	Yes	Several projects have been developed in cooperation with groups involved in the COST Action. In particular a H2020 project has been funded (Feed-a-Gene). Several other national or bilateral projects have been funded. A short list is reported below. A research project included the Biologie du Development et Reproduction unit of INRA at Jouy-en-Josas (France) and Instituto de Investigação Científica Tropical (Portugal) and was focused on the transcriptomic study of the effects of weight loss in the gastrocnemius muscle of Iberian wild rabbits during starvation using the microarray tool developed by INRA. A collaboration between University of Bologna and INRA Toulouse has been established on rabbit coat colour genetics and a STSM of a PhD student of the University of Bologna visited INRA laboratories to work on this research field (http://dx.doi.org/10.1111/age.12104). Another publication has been submitted to the World Rabbit Congress that will be held in China http://www.wrc2016.cn/ Several cooperation and research activities were established between groups working mainly in WG3. For example: Trakia University (Bulgaria) and University "Goce Delcev" (The former Yugoslav Republic of Macedonia) have worked in a collaborative project to establish protocols to isolate and culture any type of rabbit adult stem cells; Agricultural Biotechnology Center (Hungary) and Halle University (Germany) have worked to clone several rabbit gene and establish systems for protein productions from these genes. A French-Hungarian collaboration has produced a rabbit microRNA array. Funded projects: 1) Hungarian grant OTKA NK 104397: In vitro (molecular, ion channel and cellular) and in vivo investigations for the elucidation of antiarrhythmic and proarrhythmic mechanisms: the role of the repolarization reserve- development of a new rabbit model period: 2012-2016 100K Euro/ 4 years 2) Project title: Genetic characterization of brown hares in function of population size estimation in hunting areas in AP Vojvodina. Granted by Provincial Secretariat for Agriculture, Water Management and Forestry, Autonomous Province Vojvodina, Serbia. 2013. Status: approved and begun in January 2013. 3) Trakia University, Stara Zagora Bulgaria: project number 4/13 with the following title: “Study on antiadipogenic effects of omega n-3 polyunsaturated fatty acids (PUFAs) in vitro on adipocytes differentiated from bone marrow mesenchymal stem cells (MSCs) from rabbits.” deadline 26.04.2015. 4) France: Agence Nationale de la Recherche (2013-2016) ORYCTOGENE: “Generation of pluripotent embryonic stem cells useful for manufacturing transgenic rabbits”. 5) Slovak Republic: Detection of exogenous and endogenous regulators of animal reproductive functions. 6) 2013 – 2017, Determination of the effects and cellular mechanisms of biological active substances, no. APVV-0304-12, Slovak Research and Development Agency Project, Principal investigator - Adriana Kolesárová. 7) 2014 – 2016, Scientific Grant Agency of the Ministry of Education of the Slovak Republic and of Slovak Academy of Sciences. The effect of natural plant extracts on microbial and granulosa cells in vitro condition. no. 1/0611/14. Principal investigator – Miroslava Kačániová, Deputy of principal investigator - Adriana Kolesárová 8) Project title: Assessment of biomonitoring potential of brown hare micropopulations (Lepus europaeus P.) at the hunting grounds based on accumulation of heavy metals in target tissues. Funded by: Autonomous

		Province of Vojvodina, Provincial Secretariat of agriculture, water and forestry. Principal investigator: Prof. Dr Milos Beukovic, Faculty of Agriculture, University of Novi Sad; Group leader: Ass. Prof. Mihajla Djan, Faculty of Sciences, University of Novi Sad; Researcher: Nevena Velickovic, Faculty of Sciences, University of Novi Sad. 9) Genetic Improvement of Meat Rabbits: Reproduction, Growth and Health. CICYT (Spanish Ministry of Science and Technology). J.J. Pascual. Genetic Improvement. This project began in January 2012 and will finish in December 2014. 10) Mobility project to the Italian and Serbian Foreign Ministries as a cooperation between University of Novi Sad and University of Bologna. Project title: Genetic analysis and characterization of hare and wild boar populations in Western Balkan and Italy: a collaborative project between Serbia and Italy. Submitted proposals: 1) Hungarian grant OTKA application: Comparative analysis of paternal protein's transmission to zygotes- Sleeping Beauty transgenic rabbit model. Submitted. 2) Italian PRIN proposal "Genetic and epigenetic mechanisms regulating polyunsaturated fatty acids biosynthesis in different animal models". 3) Reprogramming the epiblast derived rabbit stem cells into naiv stem cells using microRNAs. Project leader: Elen Gocza, OTKA K113181 (Hungary) 4) Application for Intra-European Fellowships. FP7-PEOPLE-2013-IEF: Proposal No. 622957 - Acronym: AdiBunny Applicant: Orsolya Ivett Hoffmann, Agricultural Biotechnology Center, Animal Biotechnology Institute, Ruminant Genome Biology Group. Host: Martin Luther University Halle-Wittenberg, Germany, Department of Anatomy and Cell Biology, Prof. Bernd Fischer.
to disseminate acquired advances and to train Early Stage Researchers (ESRs)	Yes	A total of 41 Short Term Scientific Missions have been funded. Average age of funded applicants was about 35 years. Please see attached documents (STSM-status-2012-2013-2014-2015.xls and COST-RGB-Net-STSM-Report.doc)

MoU deliverables

MoU deliverable	Delivered Yes/ Partially/ No	Evidence of (partial) delivery
Deliverables of WG1		For each deliverable insert evidence of (partial) achievement including hyperlink to enable assessment (by the Action Rapporteur) of the achievement and access by end users
annotated regions of the European rabbit genome	Yes	A few papers on the annotation of specific genomic regions have been published. Please see for example: http://link.springer.com/article/10.1007%2Fs00251-013-0722-9.
a new assembly version of the European rabbit genome	Yes	A new assembled genome version has been produced using PacBio sequencer. The new assembled version will be published in 2016 by Miguel Carneiro and Leif Andersson.
new genomic sequences and data about polymorphisms (SNP and	Yes	New genomic sequences have been obtained from several papers: http://science.sciencemag.org/content/345/6200/1074.long http://dx.doi.org/10.1111/age.12121 Including Copy Number variation data:

copy number variation)		http://www.sciencedirect.com/science/article/pii/S0888754312001310
SNP genotyping platforms	Yes	A SNP chip (200 K) has been produced in collabvoration with Affymetrix. The chip will be commercialized in 2016.
transcriptomic data	Yes	RNA-seq data have been produced fromseveral tissues and used to annotated the rabbit genome http://science.sciencemag.org/content/345/6200/1074.long Another source of refined annotation comes from an INRA group who has refined annotation of the commercially available rabbit expression array (Agilent technology). These reannotations are public and can be consulted on the Website of SIGENAE that is a French bioinformatics platform for livestock species.
transcriptomic platforms	Yes	A microarray enriched with immune-related genes useful for gene expression analysis has been produced http://bmcgenomics.biomedcentral.com/articles/10.1186/s12864-015-1218-9 The resulting chip (v2) comprises 24 328 transcripts (97.4% of Ensembl transcripts) for 48 467 probes. The availability of RNA-Seq data from the Broad Institute contributed to identify 4 996 sequences still un-annotated In Ensembl, leading to include 1593 new EST on the chip (2833 probes). This chip and its annotation are available upon request (contact: V. Duranthon, INRA).
aCGH platforms	Yes	An array Comparative Genome Hybridization platform has been developed based on orycun2.0 genome version: http://linkinghub.elsevier.com/retrieve/pii/S0888-7543(12)00131-0
databases	Partially	Genomic and transcriptomic information and data have been deposited in public databases
a systems biology platform	Partially	A higher level approach of systems analysis within experts involved in the different WGs has been carried out to first develop an expertise network of the COST Action. Additional activities have not been carried out – considering the low level of funds available in this species.
scientific publications	Yes	Several publications have been obtained. Please see the list below.
STSMs	Yes	A total of 11 STSM were granted based on activities referred to WG1. Please see attached document (STSM-status-2012-2013-2014-2015.xls).
a Training School	Yes	The first training school was organized by WG1. This training school has been organized in collaboration with EuroPRRSnet COST Action a Training School in Genomics/Bioinformatics at The Genome Analysis Centre (TGAC), Norwich (UK) on the 22-26 October 2012. A fellowship for 12 applicants has been granted to attend the school. http://www.biocomp.unibo.it/rabbit/training-schools.php
Deliverables of WG2		
phenotyping and genotyping strategies, including protocols	Partially	Characterization of meat rabbit lines has been obtained through a world wide survey. Genotyping strategies have been considered using a SNP Chip (developed in WP1)
rabbit resource populations	Yes	A world wide survey on meat rabbit lines has been carried out. A list of replies from different countries is reported in the document List_of_Responses_rabbit_lines.doc
QTL for production and phenotypic traits	Yes	A QTL map for carcass traits have been reported by Sternstein et al. (2015) http://bmcgenet.biomedcentral.com/articles/10.1186/s12863-015-0168-1 Mutations affecting phenotyping traits have been reported by Fontanesi et al. (2014; 2014) http://dx.doi.org/10.1111/age.12104,

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		http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0093750, and Utzeri et al. (2014) http://dx.doi.org/10.1111/age.12171
genomic selection simulations	Yes	A network focused on genomic selection in rabbit (WG2) has been developed including scientists working in pig breeding. The reason to establish a network including these two species derives from the similarities that these two domesticated mammals share in terms of breeding strategies and plans. The more advanced experience already accumulated by the pig scientists is considered an advantage for the transfer of knowledge in the rabbit breeding sector. This network started after the WG2 meeting on rabbit and pig genomic selection that was held at IRTA, Caldes de Montbui (Spain), in February 2013 and produced as tangible result the organization of the training school on Genomic selection in rabbit breeding that was held in Valencia (Spain) in June 2013. The network has already produced scientific publications dealing with theoretical aspects of genomic selection in multiparous species.
new breeding schemes including genome information	Partally	Activities are derived by simulations of genomic selection. Limited transfer to practical applications are based on the low economic values of the rabbits compared to other species and the late availability of the SNP chip
inventory of rabbit genetic resources	Yes	Please see above for the world wide survey of meat rabbit lines. In addition, DAD-IS FAO database for rabbit breeds has been updated in a few sections.
databases	Partially	DAD-ID database has been updated
scientific publications	Yes	Several publications have been obtained from WP2. Please see below a list of publications.
STSMs	Yes	7 STSM were based on WG2 activities.
a Training School	Yes	A training School in Genomic Selection Rabbit Breeding have been organized in Valencia (June 24-28, 2013) http://www.biocomp.unibo.it/rabbit/training-schools.php
Deliverables of WG3		
databases, scientific reviews, transcriptomic and genomic data	Yes	A database on rabbit strains for biomedical applications has been structurated. http://www.biocomp.unibo.it/rabbit/databases.php Transcriptomics and genomic data have been obtained from several studies and have been already reported for WG1
new rabbit models	Yes	A new rabbit model for non aganglionic megacolon has been characterized (http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0093750). Several other models have been characterized
rabbit resource populations	Partially	A survey on rabbit models has been initiated with the construction of a specific database. Please see above.
protocols	Yes	Protocols have been developed for many different aims. Please see as an example: http://www.nature.com/nprot/journal/v9/n4/full/nprot.2014.009.html published in Nature Protocols for specific activities carried out in RGB-Net
biomedical resources	Yes	A list of biomedical resources has been obtained from the activities linked to the construction of the database and developments of new protocols (please see above).
scientific publications	Yes	A large number of scientific publications have been obtained by activities carried out in WP3
STSMs	Yes	A total of 19 STSMs has been granted for activities related to WG3.
a Training School	Yes	A Training School in Rabbit reproduction and transgenic technologies was organized at the Martin Luther University Faculty of Medicine, Halle, Germany Date: 1-4 September 2014 Local Organizer: Bernd Fischer
Deliverables of WG4		

wild rabbit and hare genomic data	Yes	Genomic data have been obtained by sequencing wild rabbits and hares. Please see http://science.sciencemag.org/content/345/6200/1074.long A summary of genomic information available in other lagomorph species has been presented in the perspective paper of the LaGomiCs. Please see attached document indicated in Annex 2 (file esw010.pdf).
comparative and virtual genomic maps	Partially	A comparative genomic approach in wild lagomorph has been started with the constitution of the LaGomiCs – a worldwide consortium for the sequencing of the genome of all lagomorph species
protocols for managing/evaluating lagomorph populations	Partially	No specific activities have been carried out to define protocols for managing wild lagomorph. Evaluation of wild lagomorph populations using genomics approaches has been obtained through specific research activities of a few WG members. Please see for example: http://dx.doi.org/10.1111/mec.12790, http://dx.doi.org/10.1111/mec.12886
scientific publications	Yes	Several publications have been obtained. The most relevant is the perspective paper of the Lagomorph Genomics Consortium for the sequencing of the genome of all lagomorph species in the world. Please see attached document indicated in Annex 2 (file esw010.pdf).
STSMs	Yes	3 STSMs have been related to activities of WG4.
a Training School	Yes	A training school on genotyping by sequencing, a genome based genotyping approach usually used in wild populations, has been organized at The Genome Analysis Centre (Norwich) Date 3-7 November 2014 http://www.tgac.ac.uk/news/142/15/Genotyping-by-Sequencing-Training-School/

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, 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.”

Several other activities and initiatives have been carried out during the COST period, including seminars, workshops and presentations to international congresses:
RGB-Net and the LaGomiCs initiatives have been presented at the following meetings and congresses:

- ISAG 2012 congress - Cairns, Australia, July 15-20, 2012
- 4th World Lagomorph Congress - Vienna, July 23-27, 2012
- 10th World Rabbit Congress - Sharm El-Sheikh (Egypt), September 3-6, 2012
- 20th ASPA Congress of the Animal Science and Production Association, Bologna 11-13 June 2013
- 5th International Meeting on Rabbit Biotechnology, Shanghai (China), June 6-8, 2013
- 2nd International Symposium on Hunting “Modern Aspects of Sustainable Management of Game Population” 17-20.10.2013, Novi Sad, Serbia
- ISAG 2014 congress - Xian, China, July 27 - August 1, 2014 (Presentation of LaGomiCs)
- Plant and Animal Genome Conference - PAG XXIII - San Diego, California (USA), January 10-14, 2015
- 2015 Genome 10K - Santa Cruz, California (USA), March 1-5, 2015 (Presentation of LaGomiCs)

- RGB-Net organized the open seminar “Giants leaps in rabbit genomics” 09.04.2013 – as a satellite event of the MC meeting (10.04.2013) that was held in Uppsala (Sweden). During the Uppsala satellite events, the Chair of SeqAhead was invited to present his COST Action.
- WG2 members organized a related workshop “Introduction to complex trait analysis", Humboldt-Universität Berlin, 21-22.11.2013 in cooperation with COST Action SYSGENET.

Other activities:

ERASMUS Mundus exchange programme linked with RGB-Net has been funded (an ESR from China – Sichuan Agricultural University to University of Bologna - Italy for 10 months, December 2013-October 2014 ; activity: rabbit genomics.
Another application to an ERASMUS Mundus programme has been submitted in cooperation between University of Novi Sad (Serbia) and University of Bologna (Italy) that should host for one month a Serbian scientist working on wild lagomorph genomics.

A book (The Genetics and Genomics of the rabbit – publisher CABI) has been in preparation – it includes 23 chapters written by RGB-Net members and will be published in 2016 as post dissemination activity.

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Co-authored publications and FP7/ H2020 proposals

Co-authored publications

This table contains the (up to) ten most significant co-authored publications resulting from the Action. All publications are on the topic of the Action, co-authored by at least two Action participants from two different countries participating in the Action.

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[1])	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[2] 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[3]?	Is it peer-reviewed?	Was the added value of the Action Networking necessary for the publication	Impact Factor (if applicable)
1	Carneiro M, Rubin CJ, Di Palma F, Albert FW, Alföldi J, Barrio AM, Pielberg G, Rafati N, Sayyab S, Turner-Maier J, Younis S, Afonso S, Aken B, Alves JM, Barrell D, Bolet G, Boucher S, Burbano HA, Campos R, Chang JL, Duranthon V, Fontanesi L, Garreau H, Heiman D, Johnson J, Mage RG, Peng Z, Queney G, Rogel-Gaillard C, Ruffier M, Searle S, Villafuerte R, Xiong A, Young S, Forsberg-Nilsson K, Good JM, Lander ES, Ferrand N, Lindblad-Toh K, Andersson L. Rabbit genome analysis reveals a polygenic basis for phenotypic change during domestication. Science. 2014 Aug 29;345(6200):1074-9. doi: 10.1126/science.1253714.	Andersson L.	40	MC Members: Fontanesi L., Garreau H, Rogel-Gaillard C., Ferrand N., Andersson L.; MC Substitute: Duranthon V.; WG Members: Carneiro M., Rubin C.J., Di Palma F., Bolet G., Queney G., Mage R.G.	WG1	2014		doi:10.1126/science.1253714	No	Yes	Yes	Food security	Yes	Yes	33.611 (IF2014)
2	Fontanesi L., Martelli P.L., Scotti E., Russo V., Rogel-Gaillard C., Casadio R., Vernesi C. (2012) Exploring copy number variation in the rabbit (Oryctolagus cuniculus) genome by array comparative genome hybridization. Genomics 100, 245-251.	Fontanesi L.	7	MC Members: Fontanesi L., Rogel-Gaillard C., Casadio R.; MC substitute: Vernesi C.; WG Members: Martelli P.L.	WG1	2012		doi:10.1016/j.ygeno.2012.07.001	No	Yes	Yes	Food security	Yes	Yes	3.010 (IF 2012)
3	Fontanesi L., Scotti E., Allain D., Dall'Olio S. (2014) A frameshift mutation in the melanophilin (MLPH) gene causes the dilute coat colour in rabbit (Oryctolagus cuniculus) breeds. Animal Genetics 45, 248-255.	Fontanesi L.	4	MC Members: Fontanesi L.; MC substitute: Allain D	WG2	2014		http://dx.doi.org/10.1111/age.12104	No	Yes	Yes	Food security	Yes	Yes	2.207 (IF 2014)
4	Chrenek P, Makarevich AV, Popelková M, Schlarmannová J, Toporcerová S, Ostró A, Zivčák J, Bosze Z. Ultrastructure of vitrified rabbit transgenic embryos. Zygote. 2014 Nov;22(4):558-64. doi:10.1017/S0967199413000282.	Bosze Z	8	MC Members: Chrenek P, Bosze Z.	WG3	2014		doi:10.1017/S0967199413000282	No	Yes	Yes	Food security/Health	Yes	Yes	1.416 (IF 2014)

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

[2] 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.

[3] 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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5	Miller I., Rogel-Gaillard C., Spina D., Fontanesi L., de Almeida A.M. (2014) The rabbit as an experimental and production animal: from genomics to proteomics. Current Protein & Peptide Science 15, 134-145.	de Almeida A.M.	5	MC Members: Rogel-Gaillard C, Spina D., Fontanesi L., de Almeida A.M.	WG1/WG2 /WG3	2014		DOI: 10.2174/1389203715666140 221115135	No	Yes	Yes	Food security/Health	Yes	Yes	3.154 (IF 2014)
6	Osteil, P., Tapponnier, Y., Markossian, S., Godet, M., Schmaltz-Panneau, B., Jouneau, L., Cabau, C., Joly, T., Blachere, T., Gócza, E., Bernat, A., Yerle M., Acloque, H., Hidot, S. Bosze, Zs., Duranthon, V., Savatier, P., Afanassieff M. (2013): Induced pluripotent stem cells derived from rabbits exhibit some characteristics of naıve pluripotency. Biology Open 0, 1–16, doi:10.1242/bio.20134242	Savatier P	18	MC Members: Bosze Zs; MC substitute: Duranthon V.; WG Members: Gocza E.; Savatier P.; STSM Recipient: Tapponnier Y.	WG3	2013		doi:10.1242/bio.20134242	Yes	Yes	Yes	Food security/Health	Yes	Yes	2.416 (IF 2014)
7	Gertz EM, Schäffer AA, Agarwala R, Bonnet-Garnier A, Rogel-Gaillard C, Hayes H, Mage RG. Accuracy and coverage assessment of Oryctolagus cuniculus (rabbit) genes encoding immunoglobulins in the whole genome sequence assembly (OryCun2.0) and localization of the IGH locus to chromosome 20. Immunogenetics. 2013 Oct;65(10):749-62.	Mage RG	7	MC: Rogel-Gaillard C; WG Members: Mage RG	WG1	2013		10.1007/s00251-013-0722-9	No	No	Yes	Food security/Health	Yes	Yes	2.488 (IF 2013)
8	Fontanesi L., Di Palma F., Flicek P., Smith A.T., Thulin C.-G. and the Lagomorph Genomics Consortium . LaGomiCs—Lagomorph Genomics Consortium: An International Collaborative Effort for Sequencing the Genomes of an Entire Mammalian Order. In press. Journal of Heredity - doi:10.1093/jhered/esw010	Fontanesi L.	49	MC: Fontanesi L., Andersson L., Casadio R., Djan M., Mamuris Z., Thulin C.-G.; MC substitute: Vernesi C.; WG Members: Abrantes J., Alves P.C, Angelone C., Campos R., Carneiro M., Di Palma F., Esteves P.J., Etherington G., Flicek P., Lavazza A., Mage R., Martelli P.L., Ferreira JM., Velickovic N., Robinson T.J., Solari C.A., Smith A.T, Ribani A., Schiavo G., Utzeri V.J.	WG4		2016	doi:10.1093/jhered/esw010	No	Yes	Yes	Food security/Health	Yes	Yes	2.088 (IF 2014)
9	Sternstein I, Reissmann M, Maj D, Bieniek J, Brockmann GA. A new single nucleotide polymorphism in the rabbit (Oryctolagus cuniculus) myostatin (MSTN) gene is associated with carcass composition traits. Anim Genet. 2014 Aug;45(4):596-9. doi: 10.1111/age.12165.	Brockmann G.A.	5	MC Members: Broackmann G.A.; Bieniek J.; WG Members: Sternstein I.	WG2		2014	http://dx.doi.org/10.1111/age .12165	No	No	Yes	Food security	Yes	Yes	2.207 (IF 2014)
10	Kulíková, B., Jiménez-Trigos, E., Makarevich, A. V., Chrenek, P.,	Vicente J.S.	6	MC Members: Chrenek P.,	WG3		2016	doi:10.1016/j.cryobiol.2015.11.009	No	Yes	Yes	Food security/Health	Yes	Yes	1.643 (IF 2014)

	Vicente, J. S., & Marco-Jiménez, F. (2016). State of actin cytoskeleton and development of slow-frozen and vitrified rabbit pronuclear zygotes. Cryobiology 72, 14-20.			Vicente J.S.; STSM Recipient: Kulikova B.											

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	Feed-a-Gene www.**feed-a-gene**.eu/	INRA France	23	MC Members: Garreau H. (France), Piles M. (Spain); WG Member: Sanchez P. (Spain); Hungary	H2020			funded	SFS-1a-2015	Food security	Yes
2	SALAAM COST Action/ BMBS COST Action BM1308 - Sharing Advances on Large Animal Models	Ludwig-Maximilians-Universität München (Germany)	40	MC members: Peter Chrenek and Adriana Kolerasorva (Slovakia), Zsuzsanna Bősze (Hungary): MC substitute:Veronique Duranthon (France) and László Hiripi (Hungary)	COST			Funded		Food security/Health	Yes
Proposals											
	Genum	University of Bologna (Italy)	20	MC Members: Luca Fontanesi, Rita Casadio (Italy); Istvan Nagy (Hungary); Gudrun Brockmann (Germany)	H2020			Not funded	SFS-1a-2015	Food security	Yes

I.C. Networking

Added value of the Networking			
Please describe here the added value of the networking, highlighting in particular anything that would not have happened without the Action networking.			
Without the action networking, it would not be possible to develop a network of experts working in different fields of rabbit genome biology. In particular, it would not be possible to develop a SNP genotyping chip for the rabbit, to construct an international consortium (Lagomorph Genomics Consortium) for the sequencing of the genome of all lagomorph species, to establish new collaborations in all fields in which rabbit genomics was part of working group activities.			
The table below shows the extent to which it would have been possible to achieve each of the Action's objectives without the Action networking.			
MoU objective	Possibility of achievement without Action networking		
	Fully	Partially	Impossible
to improve the annotation and assembly of the European rabbit genome		x	
to promote the development and exchange of genomic tools based on this resource			x
to establish a first systems biology platform for this species		x	
to obtain an improved comparative genome view across lagomorphs			x
to disseminate the potential role of genomic and post-genomic applications in all rabbit biology fields and transfer of knowledge to interested parties		x	
to develop new approaches in rabbit breeding and in wild species management			x
to foster studies in basic and applied biology fields using the European rabbit, considering the strengths and limits of this species compared to the rodents			x
to better investigate the potential of the European rabbit as a model for human diseases based on the exploitation of genomic information		x	
to better define the role of the European rabbit in biotechnology applications and explore new avenues for its exploitation in this area		x	
to stimulate collaborative plans and research activities among complementary research fields;			x
to promote the rapid transfer of innovations to end-users		x	
to coordinate research efforts in different rabbit applied biology areas			x
to disseminate acquired advances and to train Early Stage Researchers (ESRs)			x
Extent of the networking			
Describe the extent of the networking among the participants in the Action. Were all participants integrated into the networking equally? Were those targeted by COST policies on Inclusiveness Target Countries (ITCs), Early Career Investigators (ECIs)/ Young Researchers, and gender balance fully integrated into the Action networking?			
Most of the participants were integrated into the working group activities and contributed to produce the expected deliverables. Different levels of networking activities are evident considering the number of STSMs from and towards COST countries. A few MC members did not contribute at all, or were only marginally active. This will be a matter of concern related to the way in which different country select people to have roles in the MC. Of the countries targeted by COST policies on ITCs, Bulgaria, Czech Republic, Croatia, Hungary, Poland, Slovenia, Slovakia, the former Yugoslav Republic of Macedonia, Republic of Serbia, Turkey, were included in RGB-Net. In addition, to comply with the EC criteria for 'Spreading Excellence and Widening Participation', Portugal was included. The average age of people involved in STSMs was about 35 years, females represented 58.5%, therefore gender issues and integration of young researchers were fully considered by RGB-Net			

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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[4]	Timing of impact[5]
Refinement of the annotation of the rabbit genome	Scientific	Achieved
Development of SNP genotyping tool in rabbit	Scientific/technological	Achieved
Sequence of the genome of all lagomorph species	Scientific	Foreseen 2-5 years
Third version of the rabbit genome assembly	Scientific	Foreseen within 2 years
Development of genomic selection programmes in rabbit breeding	Technological	Foreseen within 2 years
Developments of other rabbit models for human diseases	Scientific/societal	Foreseen within 2 years
Development of rabbit models for basic biology questions	Scientific/societal	Foreseen within 2 years

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
STSM calls	Scientists outside RGB-Net	Dissemination in discussion groups (ANGENMAP)	
Dissemination of RGB-Net events	Scientists outside RGB-Net	Dissemination in discussion groups (ANGENMAP) and by mailing list	
Presentation of RGB-Net to national and international congresses	Scientists outside RGB-Net	Posters and oral presentations presented at different congresses	http://www.biocomp.unibo.it/rabbit/events.php
Preparation of a book on Rabbit Genetics and Genomics	All scientists and students interested in rabbit genetics	It will be published by CABI in 2016.	

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

I.F Action success(es)

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

The Lagomorph Genomics Consortium has been an interesting initiative that will provide, for the first time, the sequence of the genome of all species of an entire mammalian order. For this reason the perspective paper will have the cover of the Journal of Heredity issue in which it will be published. The initiative gathered together the World Lagomorph Society and the Lagomorph Specialist Group and WG4 of RGB-Net	Dimension of the success ■ Breakthrough: scientific

II. Management Report

II.A. Overview of expenditure

The table below summarises the Action's expenditure throughout its four year life.

	Grant Period 1	Grant Period 2	Grant Period 3	Grant Period 4	TOTAL
	01/01/2012-31/12/2012	01/01/2013-31/12/2013	01/01/2014-30/11/2014	02/12/2014-17/11/2015	
Grant Holder institution	INRA-FR-France	INRA-FR-France	INRA-FR-France	INRA-FR-France	
Meetings	EUR 34 916,74	EUR 56 910,51	EUR 47 213,84	EUR 62 807,56	EUR 201 848,65
Training Schools	EUR 25 927,55	EUR 14 734,76	EUR 36 121,38	EUR -	EUR 76 783,69
STSMs	EUR 12 150,00	EUR 29 230,00	EUR 12 805,00	EUR 11 540,00	EUR 65 725,00
Dissemination	EUR 5 305,00	EUR 11 800,00	EUR 2 000,00	EUR -	EUR 19 105,00
OERSA[1]	EUR -	EUR -	EUR 10,56	EUR -	EUR 10,56
Total Scientific Expenditure	EUR 78 299,29	EUR 112 675,27	EUR 98 150,78	EUR 74 347,56	EUR 363 472,90
FSAC[2]	EUR 11 699,89	EUR 16 901,00	EUR 14 721,81	EUR 11 152,14	EUR 54 474,84
TOTAL	EUR 89 999,18	EUR 129 576,27	EUR 112 872,59	EUR 85 499,70	EUR 417 947,74

[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

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

Not applicable for RGB-Net

Grantee		Host		Date	Topic and value added to the Action
Institution	Country	Institution	Country		

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

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Fernando Cervantes	Universidad National Autonoma de Mexico	Mexico	First Lagomorph Genomics Consortium meeting – Bologna - 18-19 February 2013	Expert in Central America Lagomorphs. Contact point for Central America for the Lagomorph Genomics Consortium
Eugene Chen	University of Michigan	USA	Final RGB-Net Meetin, Lyon, France 3-4 Nov. 2015	Expert on Rabbit biotechnology – talk at the final RGB-Net meeting
Jianglin Fan	University of Yamanashi	Japan	Final RGB-Net Meetin, Lyon, France 3-4 Nov. 2015	Expert on Rabbit biotechnology – talk at the final RGB-Net meeting – Chair of the International Rabbit Biotechnology group
Liangxue Lai	Guangzhou Institutes of Biomedicine and Health	China	Final RGB-Net Meetin, Lyon, France 3-4 Nov. 2015	Expert on Rabbit biotechnology – talk at the final RGB-Net meeting
Yixue Li	Shanghai Industrial Technology Institute	China	Final RGB-Net Meetin, Lyon, France 3-4 Nov. 2015	Expert on Rabbit biotechnology – talk at the final RGB-Net meeting
Rose Mage	NIAD National Institute of Health	USA	Third RGB-Net meeting, Zagreb (Croatia), 6-8 May 2014	Expert on Lagomorph Immunogenetics
Thomas McGreevy	University of Rhode Island	USA	Third Lagomorph Genomics Consortium (LaGomiCs) meeting, Bologna (Italy), 21-22 September 2015 – Trainers in the Training School in Genotyping by sequencing Location: The Genome Analysis Centre (TGAC), Norwich (UK) Date 3-7 November 2014	Expert on Genotyping by Sequencing in wild lagomorphs
Andrew Smith	Arizona State University	USA	second LaGomiCs meeting – Zagreb, Croatia, 6th May 2014	Chair of the Lagomorph Specialist Group
Katie Solari	Stanford University	USA	First Lagomorph Genomics Consortium meeting – Bologna - 18-19 February 2013; second LaGomiCs meeting – Zagreb, Croatia, 6th May 2014	Expert of wild lagomorphs – in particular Ochotonids

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Dissemination meetings – Not applicable for RGB-Net					
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
Add	Add	Add	Add	Add	Describe the speaker's topic and the added value to the Action

II.C. Participants

Management Committee		
Name	Country	Email address
Prof. Dr. Klaus Hackländer	Austria	klaus.hacklaender@boku.ac.at
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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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Annex 2.

List of attached documents.

Type of document	File name	Title of the file	Authors	WG	Supporting evidence
Manuscript/scientific publication	esw010.pdf	LaGomiCs—Lagomorph Genomics Consortium: An International Collaborative Effort for Sequencing the Genomes of an Entire Mammalian Order	Fontanesi et al.	WG 4	Main and secondary objectives
Analytical summary	STSM-status-2012-2013-2014-2015.xls	STSM final summary	Ino Curik	All	Main objectives
Summary	COST-RGB-Net-STSM-Report.doc	STSM report	Ino Curik	All	Main objectives
Summary report	List_of_Responses_rabbit_lines.doc	LIST OF RESPONSES BY COUNTRIES. Name of the breed-line and source of the information	Manuel Baselga	WP2	WG2 deliverable
Summary report	Notes on the responses.doc	Notes on the responses	Manuel Baselga	WP2	WG2 deliverable

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