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Preferred mechanism for bringing ideas to market

Work Package 3

Interactions with industry

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EXECUTIVE SUMMARY

This report summarizes the results of a workshop held by ERA - MBT the first of June 2017 in Brussels named “From academic knowledge to value creation based on marine biotechnology”. Furthermore, it gives an overview of results from a pre-review survey sent to the participants as well as the workshops objectives, agenda, participants and workshop set up.

The main aims and objectives of the workshop were to make guidelines addressing the communication challenges between the actors. This can increase the focus on good communications and be a tool in applied RTDI projects for value creation from marine biotechnology. Participants from all stages of the value chain from academia, industry, regulatory and policy making as well as people with law and financing experience were invited to the workshop.

Based on the results from the workshop – possible communication challenges between actors in the value chain were listed along with ideas over possible actions to minimize the impact of those. The results are presented both as text in this report but also a link to an excel file that can be downloaded so each user can adjust the list according to their needs and practically use it. This list is meant to work as guidelines over the different communication challenges that can occur when bringing a Marine Biotechnology idea from a lab innovation to the market. The guideline (Excel file) has one sheet for each step in the value chain from idea to market. The user is asked to evaluate what is the probability that each challenge is relevant for their idea and what impact it can have when bringing their idea to the market? Based on those evaluations the user can prioritize the tasks ahead, improve communications and thereby increase the possibility that their project will be brought successfully to the market.

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
TABLE OF CONTENTS	2
INTRODUCTION.....	3
AIM AND OBJECTIVES OF THE WORKSHOP.....	4
FORMAT OF THE WORKSHOP	5
PRE - SURVEY	5
AGENDA	5
<i>Morning - Work sessions</i>	6
<i>Afternoon</i>	8
PRE WORKSHOP SURVEY RESULTS	9
RESULTS FROM THE WORKSHOP	10
COMMUNICATION CHALLENGES WHEN BRINGING IDEAS TO MARKET.....	10
Communication GUIDELINES (Interactive tool)	11
APPENDICES	18
Appendix 1: Agenda.....	18
Appendix 2: Participants	20

INTRODUCTION

This report presents results from deliverable D3.8, which constitutes a part of Task 3.3, WP3 “Scoping industrial needs for sustainable development”.

The ERA-MBT DoW specifies the following for D3.8: A combined report describing major stakeholders and preferred mechanisms for bringing ideas to market. The input is coming from T3.1, T3.2 and WP2 where the key stakeholders and current clusters within the field of marine biotechnology, including international players, have been mapped. Input from the other tasks can be found in the following publications:

Marine Biotechnology Strategic Research and Innovation Roadmap

D3.1 Updated mapping of the MBT environments

D3.2 Industry needs for new legislation IPR

D3.3 Map of Tech-Transfer practice and Policy

D3.5 Funding schemes and mapping of Marine Biotechnology financing

D3.7 Definition of marine biotechnology as a subset of biotechnology

D3.1-3.5 Report on ERA-MBT open Stakeholder consultation

Marine biotechnology can deliver significant economic benefits for Europe and it has been estimated that the global market for marine biotechnology has the potential to reach \$4.8 billion by 2020, rising to \$6.4 billion by 2025¹. In order to reach this estimate, technology transfer into new markets is needed, and shorter time to market must be a reality. Key factors driving market growth include growing interest from medical, pharmaceutical, aquaculture, nutraceutical and industrial sectors. If Europe is to compete for a share of this market, the numerous marine biotechnology applications currently being explored from early proof of concept to pre-commercialisation, will require targeted support and coordination, and joint developments of new products and supply services.

To get further information on preferred mechanisms on how to bring ideas to markets, an “invitation only” workshop titled “From academic knowledge to value creation based on marine biotechnology” was held in Brussels the 1st of June 2017. The aim was to put forward guidelines over the preferred mechanism for bringing ideas to market and communication challenges between actors in the value chain to make the European value creation based on utilization of marine biotechnology as successful as possible. This report gives an overview over the workshop including it’s objectives, agenda, participants and main results.

¹ Smithers Group (2015) The Future of Marine Biotechnology for Industrial Applications to 2025. Available at: <http://www.smithersrapra.com/products/market-reports/biomaterials/the-future-of-marine-biotechnology-for-industrial>

AIM AND OBJECTIVES OF THE WORKSHOP

The main aim and objectives of the workshop were to make communication guidelines to be useful for value creation from marine biotechnology. To keep the workshop condensed and focused 18 participants from academia, industry, legal, regulatory, financing and policy making were invited. A list of the participants can be found on page 19.

The workshop was organised in collaboration with AquaTT in Ireland using the methodology of the COLUMBUS project (www.columbusproject.eu), which they are a part of. As stated on their homepage:

“The background is that the EU has been funding a large number of marine and maritime research and innovation (R&I) projects spread across different programmes. Recent efforts have been made to monitor and facilitate access to information on these projects or their results. However, key tangible outputs are not always known or exploited when they could be of use to marine and maritime stakeholders, scientists and policy makers. COLUMBUS has been designed to efficiently manage knowledge and carry out Knowledge Transfer resulting in measurable uptake and application. The project will carry out a process to identify knowledge needs from an end-user perspective so that all activities are focused on knowledge that has a high potential to be impactful if identified and transferred. This information will feed into the Knowledge Transfer cycle of the process driven work packages (WPs) that run in three overlapping cycles for the duration of the project as it focuses on nine different thematic node-based subjects/sectors.”

To ensure this, Columbus has put forward a methodology to use in workshops – through case studies and analyses of knowledge output. The methodology and work progress is described on the next pages.

FORMAT OF THE WORKSHOP

PRE - SURVEY

Prior to the workshop a pre-survey was sent to all participants.

Methodology: 14 workshop participants responded to the pre-event survey. The respondents provided their opinions on key communication issues/challenges (between different actors at different stages of the value chain) that create bottlenecks or barriers to effective commercialization of knowledge arising from marine biotechnology R&D. Responses were received from representatives from: 1 funding agency, 1 not-for-profit organization, 6 private companies, 5 academic institutions, 1 technology transfer office and 1 law firm.

Survey Results: Similar responses were aggregated into a number of simple statements. The quantity of responses fulfilling these statements was recorded. These statements were then categorized to try and group them.

The main **conclusions** of the pre-survey can be found on page 9. Based on those conclusions, underlying problems behind some of the common communication challenges/barriers were identified and discussed during the workshop. Potential actions that could be undertaken to improve the situation were explored.

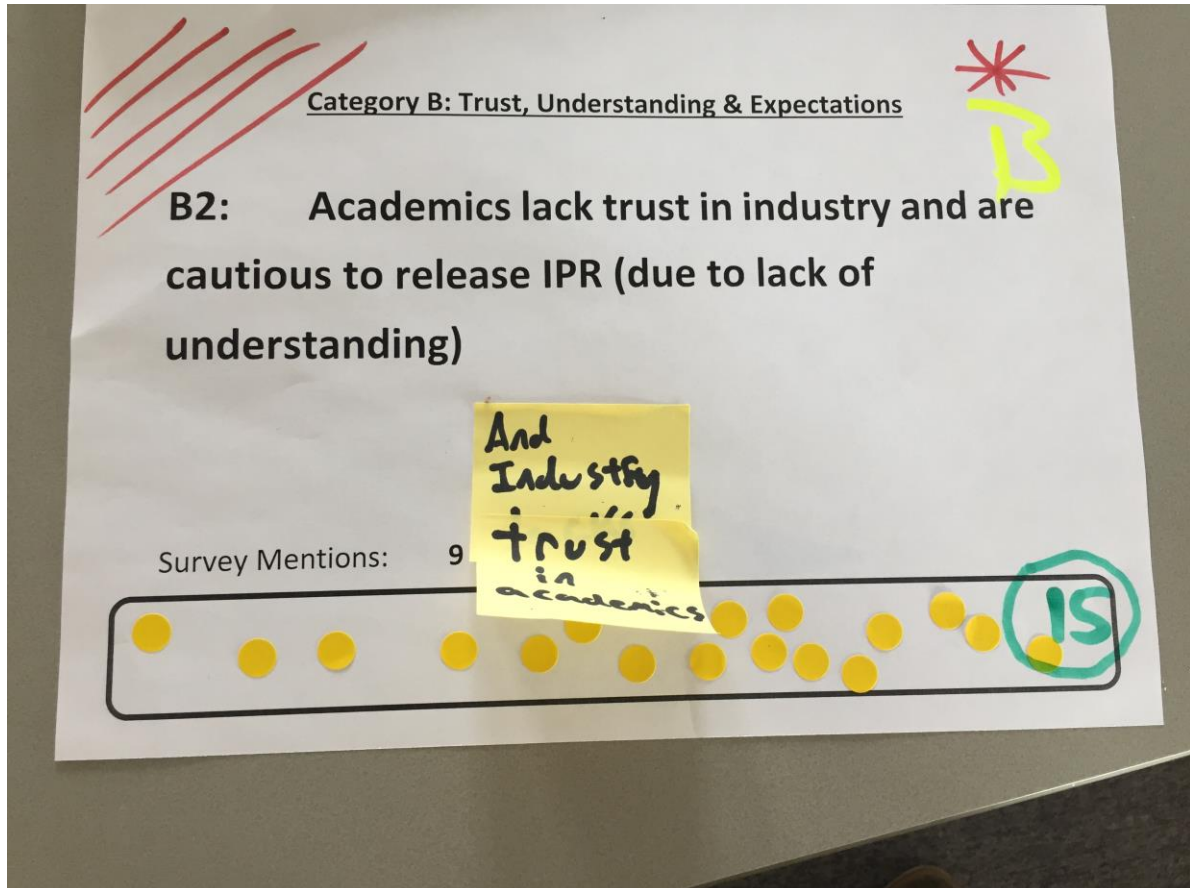
AGENDA

The workshop was divided into five different parts. Full agenda can be found on page 9. First part included introduction and welcome by ERA-MBT project coordinator, Steinar Bergseth. In the second part, to set the scene, three participants, Helena Viera (academic inventor and founder), Theresa C. Olsen (law maker) and Øyvind Enger (tech transfer), gave a short introduction and their views of the communication challenges from their different positions. The main results of the pre-survey were then summarized by AquaTT team. In the third part, participants were divided in groups. Each group was given a case study to work with and each group identified the communication challenges predicted from the case study and wider if relevant. The main findings of the pre survey and groupwork through the day were listed on the walls, and during the lunch break participants were asked to give the different statements their score of importance (Picture 1). After lunch new groups were made and people went from one station to another to propose solutions to the most important statements (Picture 2). Finally, in the fifth part, the results from the whole day were summed up by bringing it all together including round table reflections from the participants.

Morning - Work sessions

<p>Part A Case study <i>Past Communication Experiences</i></p>	<p>Knowledge Owner described</p> <ul style="list-style-type: none"> - Current stage of knowledge in value chain - Describes previous stages (1 or 2 milestones) where engagements between stakeholders took place - Briefly describe communication challenges encountered
<p>Part B Case study <i>Future Potential Communication Challenges</i></p>	<p>Group discussion on <u>past milestones</u></p> <ul style="list-style-type: none"> - Identify roots of the communication problem(s) encountered? - How were they resolved/overcome? - What could be done to improve underlying root communication challenges encountered?
<p>Brainstorming towards Solutions</p>	<p>Knowledge Owner described</p> <ul style="list-style-type: none"> - Next stages in pathway to commercialisation
	<p>Group discussion</p> <ul style="list-style-type: none"> - Predict potential communication challenges that may arise - Identify roots of the communication problem(s) - How could they be resolved/overcome in the case study? - What could be done to improve the underlying root communication challenges?
	<p>Establish consensus on key bottlenecks/challenges for efficient and targeted info flow and communication in the value chain(s)</p> <ul style="list-style-type: none"> - As a group you choose the topics to tackle - Everyone will work on every topic in the afternoon - Feedback on the session
	<p>Voting</p> <ul style="list-style-type: none"> - What do you think are the root communication problems? - Each participant had 10 voting stickers (Error! Reference source not found.)

Example of voting on the main findings of the pre survey and work through the day where each participant gave each finding a score based on its importance (Picture 1).



Picture 1. Example of voting with the yellow stickers.

Afternoon

Based on the results from the voting, topics were chosen and discussed further using a Carousel methodology (Picture 2):

<p>Carousel Methodology Error! Reference source not found.</p>	<p>Participants split into new groups</p> <ul style="list-style-type: none"> - First group brainstormed on a topic. When time is up, move to next station. - When group 2 arrived, updated by rapporteur on previous discussions and build upon previous work. - Continued until all the stations had been visited
	<p>Actions for Solutions</p> <ul style="list-style-type: none"> - What action(s) could be taken to overcome this issue/root communication problem in the future? - Who is the action targeted towards? - Who should be responsible for carrying out action? - Any examples of good practice/ other considerations?



Picture 2. Carousel in the action.

PRE WORKSHOP SURVEY RESULTS

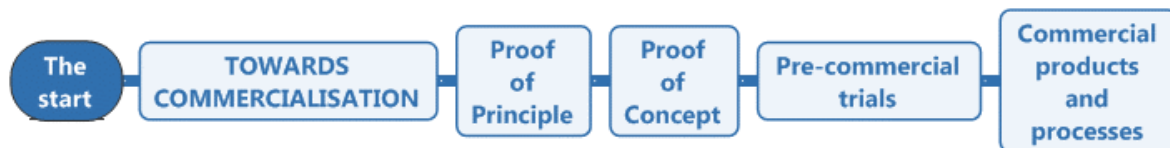
Answers to the online survey sent to participants prior to the work shop. The numbers indicate how many participants stated the mentioned item as an issue when bringing MBT ideas to market.

Phase		Basic Research	Applied Research	Concept Development	Pre-Commercial Trials	Commercial Products Processes	TOTAL
CATEGORY A: MARKET FOCUS AND AWARENESS							
A1	Disconnect between research design and/or product design and application by society, policy and industry (customer demand, societal needs and market dynamics)	1	6	3	1	1	12
A2	Commercial potential of research is not recognised by researchers	1		2			3
A3	Expectations of commercial value of research can be overly ambitious (e.g. drug discovery research)		1	2			3
A4	The commercialisation of knowledge (e.g. validation, regulatory approval, scaling) can be a hard sell to prospective investors			2			2
A5	Marine biotechnology companies fail to identify market opportunities beyond their field					1	1
Phase		Basic Research	Applied Research	Concept Development	Pre-Commercial Trials	Commercial Products Processes	TOTAL
CATEGORY B: TRUST, UNDERSTANDING AND EXPECTATIONS							
B1	Scientists do not always know how to commercialise their knowledge	5	3	2		2	12
B2	Academics lack trust in industry and are cautious to release IPR (due to lack of understanding)	6	1		1	1	9
B3	All stakeholders present in the value chain should share a vision			1		1	2
B4	Scientists are not always aware of or connected to other stakeholders in their value chain	1		1			2
B5	To an industrial actor, partnering with anyone outside the company may be considered as outsourcing potential in-house opportunities			1	1		2
B6	Need to learn lessons from previous experiences, yet stories of success and failure are often hidden by industrial partners				1	1	2
B7	Technology Transfer Offices (TTOs) are detached from the science	1					1
B8	Disproportionate focus on obtaining patents when there is a lack of understanding regarding third party rights, i.e. Freedom to Operate		1				1

RESULTS FROM THE WORKSHOP

COMMUNICATION CHALLENGES WHEN BRINGING IDEAS TO MARKET

The value chain from innovative ideas based on marine biotechnology R&D to market is divided into the following six steps:



The main communication challenges revealed during the workshop are listed in the tables below. The tables are available in an interactive Excel file embedded in this Word document and can be used in processes developing academic inventions to products and services in markets.

The Excel file can also be downloaded so each user can adjust the proposed lists according to their needs. The lists are meant to work as guidelines over the different communication challenges that can occur when bringing a Marine Biotechnology idea from a lab innovation to the market. The guidelines (Excel file) have one sheet for each step in the value chain from idea to market. The user is asked to evaluate what is the probability that each challenge is relevant for their idea and what impact it can have when bringing their idea to the market. Based on those evaluations the user can prioritize the tasks ahead, improve communications and thereby increase the possibility that their project will be brought successfully to the market.

The developed version 1 of the tool: the “ERA-MBT Guidelines for Communication in the value chain 2017”) is available in the format of an interactive Excel file at <http://www.marinebiotech.eu/communication-guidelines>.

COMMUNICATION GUIDELINES (INTERACTIVE TOOL)

Introduction/Aim	This worksheet is intended to work as tangible guidelines to get insight and specify the different communication challenges between actors when bringing a Marine Biotechnology innovation through the value chain from lab to the market
How is it divided	There is one sheet for each of the 6 different steps in the value chain
Probability	Score the probability for how each challenge is relevant for the work to be done to bring your innovation through the value chain. Give it a score from 1 (low probability) to 5 (high probability)
Impact	What impact will the challenge have on the efficient development of your innovation? Give it a score from 1 (low impact) to 5 (high impact)
PI	The PI factor is calculated as $Probability \times Impact$ and can range from 1 to 25. Sorting the challenges after the PI factor from high to low give a good indication on how to prioritize your resources.
Responsible	In the "Responsible" column you can assign the task to specific partners in your consortium
Checkbox	When the challenge has been tackled you can check the box
More challenges	This list is not complete - add lines and challenges as you need

1. KNOWLEDGE OUTPUT – THE START	Communication challenges	Action idea to minimize risk	Probability	Impact	PI	Responsible	Checkbox
<p>Ojectives: To clearly describe the knowledge obtained, to be communicated to scientific audience, potential stakeholders/industry and public.</p> <ul style="list-style-type: none"> - Initial, tentative questions: - What is the novelty? - Presumed application area(s)? - Is there a presumed market pull, or is it purely technology push? 	Is the description of the academic knowledge output well formulated for external uptake by delopment managers?	Seek external feedback and if needed, improve communication skills			0		
	Are the messages too complex?	Simplify description and ask people from outside your field to read through your text			0		
	Business people don't understand the idea	Train the scientist/supervisor to produce the needed information – orally and in written form			0		
	Is my information adapted for the different stakeholders?	Have different "pitch" talks for other scientist, tech transfer officers, capital owners, company boards ...			0		
	Is the potential value/application areas of my knowledge output estimated to its full potential?	Seek recognition and refer to similar work and publications to benchmark			0		
	Do I need external expertise	Be concrete and contact knowledge brokers			0		
	Is novelty sufficient? Do I have legal freedom to operate?	Do patent searches			0		
	Is my knowledge output legally secured?	Make a patent/publish strategy and seek advice/help from a TTO, patent lawyer or similar			0		

2. SETTING TIMELINES AND DEFINING FORESEEN STEPS TOWARDS COMMERCIALISATION	Communication challenges	Action idea to minimize risk	Probability	Impact	PI	Responsible	Checkbox
Ojectives: Setting the team to realise the knowledge output: - Researcherrs - TTO representatives - Regulatory expertise - Marketing expertise (process) - Application area expert - User Consider if leadership may be too academic.	Build trust between partners	Make agreements between parties:					
		- Make confidentiality agreement			0		
		- Initiate agreements for oral communication			0		
		- Make agreements for written communication			0		
		- Make agreements for documentation: - who should be informed about what			0		
	Understand industry's interest in our knowledge output	Work with industry to make them more receptive to knowledge output from academia			0		
	Set realistic timelines and budgets	- Do not oversell			0		
		- Keep focus			0		
	Understand implications of TRL stage	Be aware of how TRL may affect the tasks to be communicated and done			0		
	Communication with TTO	Ascertain that TTO representative understand the knowledge output			0		
Create positive interest from downstream users	Plan from start how to communicate with downstream users			0			

3. PROOF OF PRINCIPLE	Communication challenges	Action idea to minimize risk	Probability	Impact	PI	Responsible	Checkbox
Objectives: Demonstrate the feasibility of the commercialisation by applying the knowledge output in a production setting	Need to validate results	Obtain trust in the team and from external parties about previous results.			0		
	To explain use of methods and validate	Have the right methods been used to validate research results (e.g. animal/human models)?			0		
	Meet expectations of downstream users	Identify downstream user needs			0		
	Keep commercial focus in mind	Investigate commercial potential			0		
	Follow the right quality standards	Identify potential quality standards to be met, and communicated to the team			0		
	Potential violation of IP rights	Consider 'freedom to operate' and rights of all involved, including third parties (TTO task)			0		
	Obtain mutual understanding between academy and industry actors about principles and working goals	Bring people from factory to lab and vice-versa and initiate open dialogues in the team			0		

4. PROOF OF CONCEPT	Communication challenges	Action idea to minimize risk	Probability	Impact	PI	Responsible	Checkbox
Objectives: Demonstrate that the concept of the knowledge output has a practical and commercial potential	Define infrastructure needed. Equipment from lab to pilot scale.	Communicate need for infrastructure (types, cost, competences). Specify equipment and facilities needed when going from lab to pilot scale. Talk to plant managers.					
	Communicate commercial potential	Define level of concept complexity – if too high, hard to communicate commercial potential					
	End user needs	Specify end user needs – cultural conditions? Talk to specialists.					
	Highlight commercial potential	Set realistic expectations to commercial potential					
	Distinguish between real and perceived risks	Settle risk agreements among all team members					

5. PRECOMMERCIAL TRIALS	Communication challenges	Action idea to minimize risk	Probability	Impact	PI	Responsible	Checkbox
Objectives: Final tests before full scale-up of production, tuning involvement and agreements between production partners	Investor involvements	Define realistic time and cost aspects, and present realistic production scenarios for investors			0		
	Engaging entrepreneurs / engineers	Set proper milestones for entrepreneurs/engineers involved			0		
	Understand regulatory barriers	Check potential regulatory barriers for your marine products and raw material (may be iterative)			0		
	Obtaining customers' acceptance	Present prototype samples to customers and get feedback			0		
	Reach out to 'new' users or stakeholders and expand network	Consult TTO, team members and experts with market knowledge			0		

6. COMMERCIAL PRODUCTS AND PROCESSES	Communication challenges	Action idea to minimize risk	Probability	Impact	PI	Responsible	Checkbox
Objectives: Securing success of knowledge output commercialisation	Obtain consensus among parties in final stages of the value chain	Communicate with production operators, marketing people and business managers involved in final processing			0		
	Explain value potentials to new markets	Identify opinion leaders and start communicating. Listen carefully and be flexible.			0		
	Communication with the general public	Discuss your products/processes at their "level". Consult professional media people.			0		

APPENDICES

APPENDIX 1: AGENDA

Timing	Session
08.30 – 09.00	Registration and Coffee
09.00 – 09.30	Introduction and welcome Chair: Steinar Bergseth <ul style="list-style-type: none">a) Introduction to ERA-MBT, purpose of workshop and expected outcomes (Steinar Bergseth, RCN)b) Introduction to the COLUMBUS project (David Murphy, AquaTT)c) Round table with short introductions by participants
09.30 – 10.30	Setting the Scene – Communication Challenges Chair: Steinar Bergseth <ul style="list-style-type: none">a) Stakeholder Perspectives - Sharing Personal Experiences (5-8 minutes each)<ul style="list-style-type: none">1) Entrepreneur Perspective (Helena Viera)2) Legal Angle (Theresa C. Olsen)3) Investor Point of View (Øyvind Enger)b) Presentation of the results of the Pre-event Participant survey (AquaTT) & discussion around results
10.30 – 10.45	Coffee Break

10.45 – 12.45	<p>Practical Examples – Use of real case studies to identify communication challenges</p> <p>Chair: AquaTT</p> <ul style="list-style-type: none"> a) Presentation of 3 or 4 case studies b) Introduce Methodology for Breakout Session c) Breakout into working groups <ul style="list-style-type: none"> a. Groups discuss case study at 3 tables with an admin chair and rapporteur from the organizers b. Identify communication challenges predicted from case study and wider if relevant d) Feedback from working groups <ul style="list-style-type: none"> a. Option for others to add/comment b. Capture the feedback
12.45 – 13.45	Lunch
13.45 – 15.45	<p>3) Brainstorming towards solutions</p> <p>Chair: AquaTT</p> <ul style="list-style-type: none"> a) Review morning progress b) Establish consensus on key bottlenecks/challenges for efficient and targeted info flow and communication in the value chain(s) c) Select topics for breakout d) Break into groups and brainstorm on solutions and recommendations to overcome the bottlenecks/challenges e) Feedback on Session
15.45 – 16.30	<p>4) Bringing it all together</p> <p>Chairs: ERA-MBT & COLUMBUS</p> <ul style="list-style-type: none"> a) Summing up from day b) Round table reflections from participants c) Closing of meeting by organisers
16.30	Close of Meeting

APPENDIX 2: PARTICIPANTS

Participants to ERA-MBT workshop 1st June 2017

Name	CC	Affiliation
Øyvind Enger	NO	Sarsia Seed
Ole Jørgen Marvik	NO	Innovation Norway
Hördur Kristinsson	IS	Matis
Greta Jakobsen	DK	Marinova
Jan Buch Andersen	NO	Njorth Bio
Helena Vieira	PT	Univ. Lisbon
Mogens Wümpelmann	DK	Novozymes
Theresa Comiskey Olsen	NO	Langseth law firm DA
Randi Elisabeth Taxt	NO	TTO-office
Thomas Vanagt	BE	eCOAST
Bert Klebl	DE	Lead Discovery Centre (LDC)
Cees Sagt	NL	DSM
Nelo Emerencia	BE	BBI-BIC
Joanna Dupont Ingles	BE	EuropaBio
Reid Hole	NO	NORD University
Rosa Fernandez	SP	TTO-office
Organizers		
Keegan Porter	IRL	AquaTT / COLUMBUS
David Murphy	IRL	AquaTT / COLUMBUS
Georgia Bayliss-Brown	IRL	AquaTT / COLUMBUS
Steinar Bergseth	NO	The Research Council of Norway
Torger Børresen	DK	The Research Council of Norway
Margrét Geirsdóttir	ISL	Matis
Sigurdur Björnsson	ISL	Rannis