Grupo "Papel de la ruta de la ubiquitina en el control del crecimiento y respuesta a estrés de las plantas"

CNB
CENTRO NACIONAL DE BIOTECNOLOGIA

Vicente Rubio Muñoz

CSIC

Grupo "Papel de la ruta de la ubiquitina en el control del crecimiento y respuesta a estrés de las plantas"

Señalización por luz y epigenética

Sandra Fonseca (Inv. Dist.)

Esther Cañibano (Predoc)

Proteostasis cloroplastídica

Pablo Pulido (Talento)

Jorge Vicente (Post)

Estrés abiótico y epigenética

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Horizon Europe Programme

Guide for Applicants

Marie Skłodowska-Curie Actions - Doctoral Networks (DN)

Version 1.1 - 2022
21 April 2022

Net4Mobility+

Network of the Marie Skłodowska-Curie Actions National Contact Points for the mobile scientific and innovation community

Deliverable No. 3.3

MSCA-ITN Handbook 2020

Issued by: Geraldine Canny, IUA, IE
Issued data: 12th November 2019
Work Package Leader: Innovation Authority, IL

BioInspireSensing – Consolidación Proyecto

- **Mejora de la propuesta**
  - Mejorar la composición del Consorcio en cada "call"
    - Eliminar los socios que puedan inducir debilidades en el Consorcio
  - No absorber los 15 ESRs en la primera "call"
    - Margen de maniobra para introducir nuevos socios
  - Tener en cuenta observaciones del Evaluation Summary Report (ESR) sin obsesionarse
    - Las fortalezas en una "call" podrían ser tus debilidades en la siguiente
    - Disparidad de opiniones entre los referee de diferentes "calls"
  - Solicitar ayuda para la escritura de la propuesta
    - Empresas especializadas en la gestión total o solo en la supervisión
    - Ayudas económicas nacionales para la redacción de proyectos
      - Europa Investigación
  - Realizar alguna reunión técnica de trabajo del Consorcio

BioInspireSensing – Implementación

- **Fase Inicial**
  - Proyecto suele empezar sobre Enero
    - Empezar el trabajo a ser posible antes del inicio del proyecto
  - Contratación del Project Manager, **lo antes posible**
    - El primer año tiene una carga de trabajo de management elevada
  - Implementar la pagina web lo antes posible
    - Importante para la gestión de toda la contratación del Consorcio
  - No subestimar la carga de trabajo en la coordinación del Consorcio
  - Amendment
    - Puede darse en cualquier momento del proyecto
    - En nuestro caso el COVID trajo modificaciones del Consorcio incluso antes de las contrataciones.

MSCA DN 2021 “EpiSeedLink” Grant Nº 101073476

“From seed to seedling: Epigenetic mechanisms of priming to design strategies for crop improvement”

Objetives:

1) To study in oilseed rape (*Brassica napus*) and Arabidopsis how the epigenome modulates seed vigour, seedling establishment and stress adaptation.

2) To exploit the epigenome diversity to identify interesting traits that underlie priming and enhance seed and crop vigour.

3) To foster the training and career development of 11 young researchers

MSCA DN 2021 “EpiSeedLink”

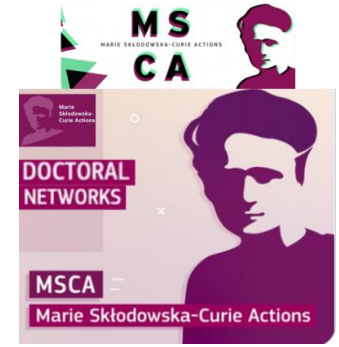
11 Research Groups: 9 from academy and two companies

Fredy Barneche
David Alabadi
Sara Farrona
Klaus Grasser
Ueli Grossniklaus
Manuel Piñeiro
Aline Probst
Vicente Rubio
Maike Stam

EAB
Leonie Bentsink
(WUR, The Netherlands)
Ortrun Mittelsten-Scheid
(GMI, Austria)
Anna Amtmann
(U of Glasgow, UK)
Jon Falk (SU Biotec, Germany)
Loïc Lepiniec (IJPB, France)
Ales Pecinka (IEB, Czech Republic)

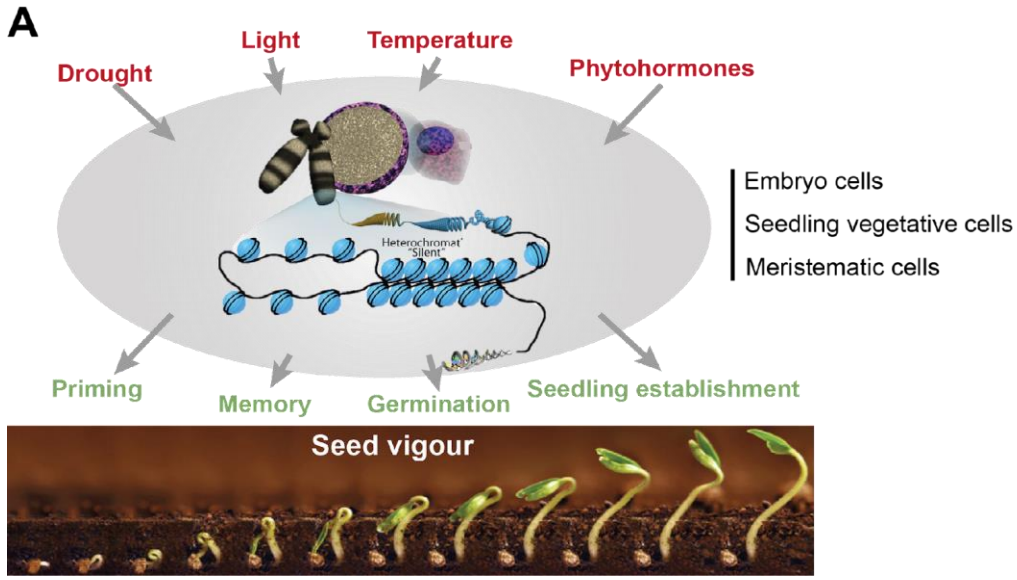
BioAtlantis (Ireland)

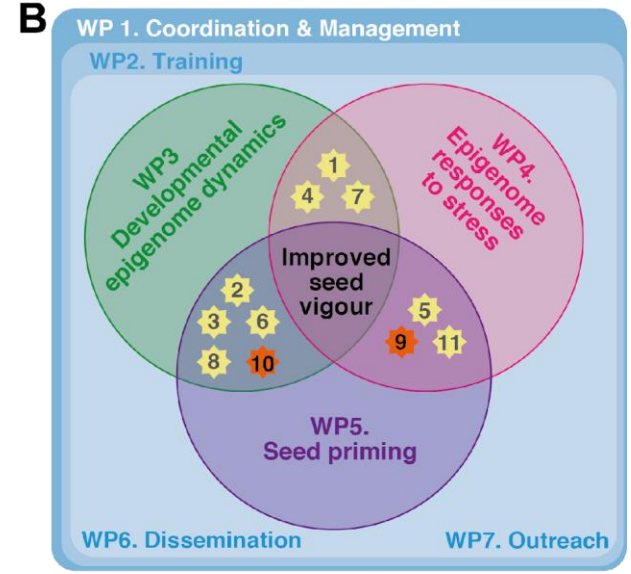
Deutsche Saatveredelung AG (DSV) (Germany)



Excellence

1.1 Introduction, objectives and overview of the research programme





WP	WP title	Lead Beneficiary	Start Month	End Month	Activity Type	Lead Beneficiary	Fellows Involved
1	Coordination and Management	B1	1	48	Management	CSIC-CNB	All
2	Training	B5, B6	6	48	Research	UVA, UCA	All
3	Seed germination and seedling establishment	B2, B4	6	41	Research	ENS, UREG	All
4	Identifying mechanisms of stress adaptation during seed germination/seedling establishment for improved crop yield	B1	6	41	Research	CSIC-CNB, CSIC-IBMP	All
5	Seed priming tools for stress acclimation, improved growth, and crop performance	B7, B8	6	41	Research	BIOAT, DSV	All
6	Dissemination & Public Engagement	B8, AP1	3	48	Dissemination	DSV, UZH	All
7	Outreach	B3, B6	3	48	Management	NUIG, UVA	All

Excellence

1.2 Soundness of the proposed methodology

WP	Biological process	Tasks	Key contributing IRPs										
			1	2	3	4	5	6	7	8	9	10	11
3	Developmental regulation of germination and seedling emergence	Task1. Phenotypic analyses of Arabidopsis mutant lines	■		■	■		■	■			■	
		Task2. Transcript profiling	■			■			■	■			■
		Task3. Profiling of chromatin composition and spatial organisation	■			■	■		■	■	■		
		Task4. Protein network analysis	■				■	■	■				
4	Chromatin-mediated responses to drought, heat, and high light	Task1. Physiological response to stress	■	■	■				■		■	■	
		Task2. Transcriptomic responses to stress		■	■			■		■			■
		Task3. Chromatin dynamics upon stress		■	■	■		■		■			■
		Task4. Protein interactome under stress		■				■					
5	Seed and seedling priming	Task1. Phenotypic consequences of seed/seedling priming		■	■		■		■		■	■	■
		Task2. Molecular mechanisms of seed/seedling priming					■				■	■	■
		Task3. Decipher memory-related priming networks	■			■	■			■	■	■	
Overarching task		Knowledge transfer to oilseed rape varieties	■	■	■	■	■	■	■	■	■	■	■

Table 1.2: Integration of Fellows within distinct Research WPs and major contributions to the research programme.

Excellence

1.3 Quality and credibility of the training programme

Table 1.3.1.4 Composition of Thesis Advisory Committee (TAC)			
Fellow	**Main supervisor**	**Co- supervisors from the *EpiSeedLink* Network**	**Mentor from EAB**
F1	V. Rubio	A. Probst (UCA); *S. Neerakkal (BIOAT)*	L. Bentsink
F2	D. Alabadi	K. Grasser (UREG); *U. Feuerstein (DSV)*	L. Bentsink
F3	M. Pineiro	F. Barneche (ENS); *K. Kahle (DSV)*	L. Lepineic
F4	F. Barneche	M. Pineiro (CSIC-CBGP); *K. Kahle (DSV)*	O. Mittelsten Scheid
F5	S. Farrona	M. Stam (UVA); *J. O'Sullivan (BIOAT)*	A. Pecinka
F6	K. Gasser	D. Alabadi (CSIC-IBMCP); *K. Guinan (BIOAT)*	O. Mittelsten Scheid
F7	A. Probst	V. Rubio (CSIC-CNB); *K. Guinan (BIOAT)*	A. Pecinka
F8	M. Stam	U. Grossniklaus (UZH); *U. Feuerstein (DSV)*	L. Lepineic
F9	*S. Neerakkal*	**S. Farrona (NUIG)**; U. Grossniklaus (UZH)	*J. Falk*
F10	*U. Feuerstein*	**S. Scholten (GAUG)**; S. Farrona (NUIG)	*J. Falk*
F11	U. Grossniklaus	F. Barneche (ENS); *S. Neerakkal (BIOAT)*	A. Amtmann

Members from non-academic sector are in blue.

Academic supervisors for fellows in the non-academic sector are in bold.

Excellence

1.3.1.5 Organisation of the training programme

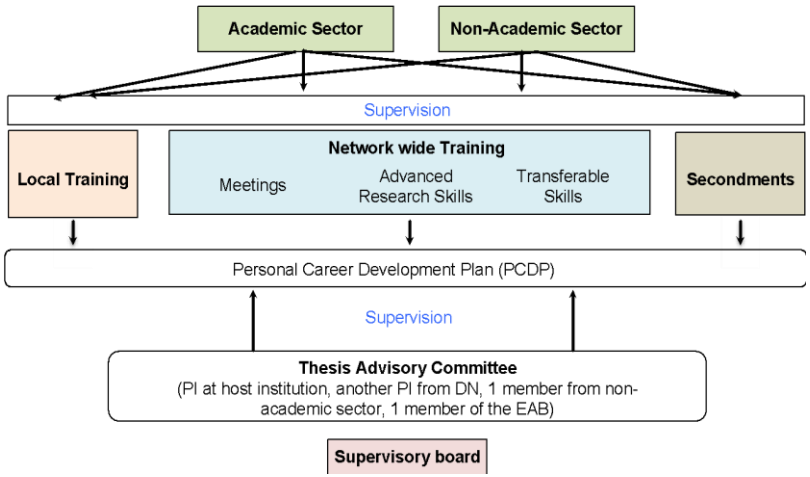


Figure 1.3: Overview of the training program

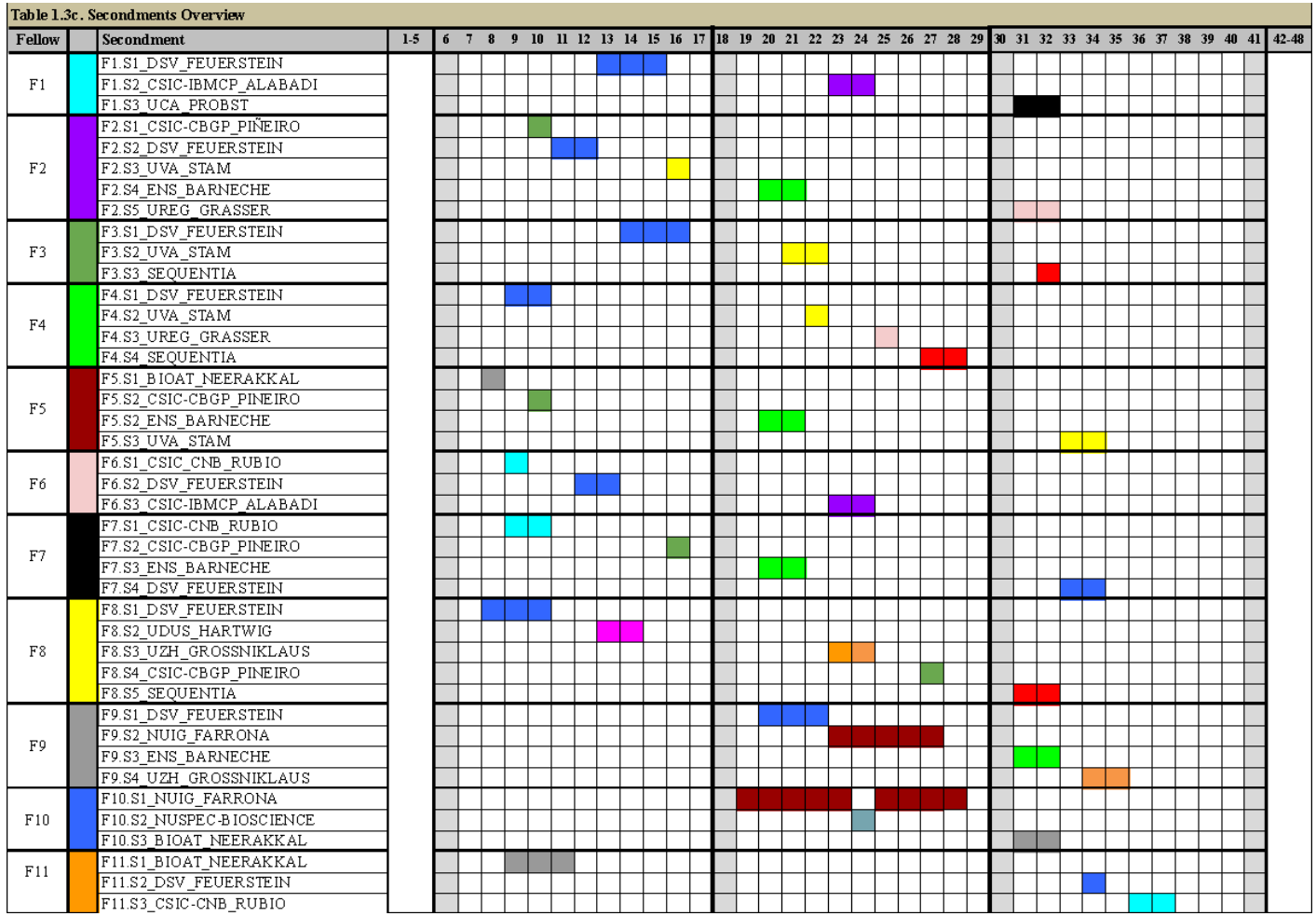
Table 1.3.1.5 KPIs to monitor training programme & its quality assessment	
Key Performance Indicator titles	KPI value
Workshops/annual EpiSeedLink meetings	4
Advanced research skill training events organized by EpiSeedLink	11
Transferrable skill training events organized by EpiSeedLink	9
Fellows attending the EpiSeedLink training events	11
External participants attending EpiSeedLink training events	4-9
ECTS earned by Fellows via network-wide training events	17.5
Rating of all network-wide training events	Very good-excellent
Secondments organized within EpiSeedLink	40
ECTS acquired by the Fellows through secondments	170
Collaborative projects within EpiSeedLink	10
Public engagement activities organized by EpiSeedLink Fellows	30-40
Scientific papers published by EpiSeedLink Fellows	20
Protocols established for oilseed rape	9- 12
Participants at the international meeting	120

Training programme: Complete, homogeneous, solid, assessable outputs

Excellence

3- Secondments at beneficiaries and associated partners from academic and non-academic sectors

Table 1.3c. Secondments Overview



Excellence

1.4.1. Qualifications and supervision experience of supervisors

Table 1.3e: Scientific Excellence and Supervision Experience of Beneficiaries					
Partner	**Nr PhD students graduated**	**Nr Postdocs mentored**	**Publications**	**H-factor**	**Experience in MSCA/COST/Other relevant EU programmes**
CSIC-CNB	6	8	46	26	**1.** COST Action INDEPTH (CA16212); **2.** COST Action BM1307.
CSIC-IBMCP	9	7	48	30	**1.** Supervisor H2020-MSCA-IF-2018 TRANSLIGHT (GA-835599). **2.** H2020-MSCA-RISE-2014 SIGNAT (GA-644435).
CSIC-CBGP	8	16	102	21	**1.** MCA-2021-ITN 2012 EpiTRAITS (GA316965); **2.** Supervisor IEF (GA298790)
ENS	4	6	33	21	**1.** MCM in COST Action INDEPTH (CA16212); **2.** COST Action PROTEOSTASIS (BM1307)
NUIG	1	2	26	18	**1.** H2020-MSCA-RISE 2015 SexSeed; **2.** Co-supervision MSCA-IF; **3.** MCM & WP leader COST Action INDEPTH (CA16212); **4.** MCM in COST Action EPICATCH (CA19125)
UREG	17	5	97	32	MCA-2013-ITN CHIP-ET (GA607880)
UCA	2	1	45	29	MCM & WP leader COST Action INDEPTH (CA16212)
UVA	5	2	33	25	**1.** Coordinator MCA-2021-ITN 2012 EpiTRAITS (GA316965); **2.** MCA-2013-ITN; COMREC; GA- 606956; **3.** MSCA-ITN-2017 MEICOM (GA765212)
BIOAT	10	3	>80	33	**1.** MSCA-ITN-2014 CropStrengthen (GA- 642901); **2.** MSCA-RISE 2018 RESIST (GA823746).
DSV	2	1	15	5	**1.** FP7-PEOPLE-2010-ITN CropLife (GA-264394); **2.** EU-EIP-Innovation project BioSeed (GA276033540220041) **3.** BONARES - Catchy (GA031A559A)
UZH	29	47	275	82	**1.** COST Action HAPRECI (FA0903); **2.** COST Action INDEPTH (CA16212); **3.** COST Action EPICATCH (CA19125); **4.** ERC AdG 250358: MEDEA; **5.** Coordinator COFUND 267423: Plant Fellows; **6.** Coordinator ITN 608422: IDP-Bridges; COFUND 847585: Response.

Table 1.3e. Only PhD students who successfully graduated are indicated. If not specified, the partner is Beneficiary of an EU programme. MCM is Management Committee Member. See part B2 for more details.

Impact

2.1.1 Contribution to structuring doctoral training at the European level and to strengthening European innovation capacity,

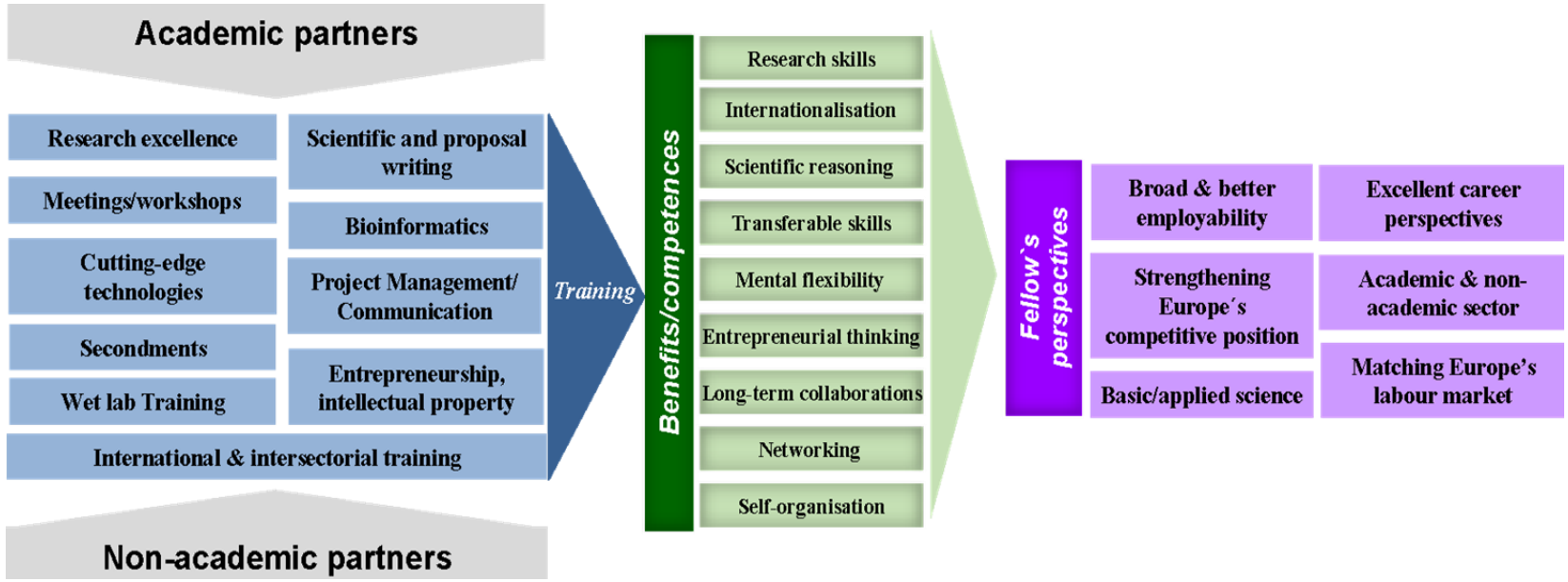


Figure 2.1 explains how *EpiSeedLink* will contribute to structure the Fellows' training and how this will be converted into new competences/expertise that meet the needs of the labour market.

Impact

2.3.1.1 Plan for dissemination and exploitation activities

Table 2.3.1.1 Plan for the dissemination and exploitation activities

	Main activities	Timing	Target Audience	KPIs	Dissemination Level
1	Dissemination page on *EpiSeedLink* website	M1-M48 (+ 60 months)	*EpiSeedLink* members, public at large, researchers and stakeholders	> 1,000 recipients; >25-50 communications	CO + PU
A **website** developed and hosted by CSIC will be ready at the start of *EpiSeedLink* with restricted (only members) and publicly accessible areas. It will describe: i) the project, ii) members (Bs, APs, EAB, Fellows), iii) IRPs, iv) preliminary and final results, v) announcements (i.e. open positions, meetings, training and PE events), vi) a page with PE activities. *EpiSeedLink's* website will be announced and shared with the general public, stakeholders and researchers through e-mail signatures, meeting presentations, newsletters and webpages of Bs' and their institutes, social media (e.g. Twitter) and contributions to other events (PE activities, etc). Newsletters of DSV, and BIOAT will enhance advertising the site to broader public. The website will allow the public to register for the *EpiSeedLink* newsletter (see below).					
2	*EpiSeedLink* newsletter	M1-M48	Public at large, researchers and stakeholders	> 1,000 recipients; >8 newsletters	PU
Newsletters will inform researchers and stakeholders on *EpiSeedLink*-related issues and announcements, including the project start. They will be published twice a year on the project website and shared by email using an *EpiSeedLink* contact list. A summary of *EpiSeedLink's* newsletter information will be integrated into the monthly, national and international DSV and BIOAT newsletters. Shareholder-specific information will be published on DSV's and BIOAT's company website/blog posts twice a year.					
3	*EpiSeedLink's* presence in social media	M1-M48	Public at large	> 1,000 recipients; 100-200 posts	PU
Social media, i.e. Twitter, Facebook and LinkedIn accounts, will be used for dissemination of *EpiSeedLink* announcement, news, and results. Fellows will be encouraged to communicate with specialised (and non-specialised) public (**Table 2.3.1.2**) through these accounts. A social media code of conduct will be implemented to ensure information that is confidential or infringing on IPR will not be disclosed.					
4	Scientific publications	M6-M48	Researchers and academics	>1,000 academics; 25-35 peer-reviewed publications	PU
>10 and 15-30 scientific **golden or green open access publications** for *EpiSeedLink* research results, and protocols are expected in **high-** and **medium impact journals** (e.g. *Genome Biology, Plant Cell*, *Nature Plants, Plant methods*), respectively. Preprint manuscripts will be submitted to bioRxiv, a permanent open access repository. We expect all Fellows to publish data and protocol papers, also > Mo48.					
5	Oral and poster presentations at national and international conferences	M8-M41	Researchers and academics	>1,000 academics; >25 presentations/posters	PU
Research results will be presented by Fellows/Bs at national and international **conferences** (e.g. European Workshop on Plant Chromatin (EWPC), Plant & Animal Genome Conference (PAG), Epigenetics GRC, International Rapeseed Congress (IRC), International *EpiSeedLink* Conference (IEC)). >20 presentations/posters are expected. The IEC (**Table 1.3b**) will be open to academia and industry stakeholders.					
6	International workshops, trade fairs and webinars	M12-M41	Stakeholders	>100 stakeholders; >5 contributions	PU
EpiSeedLink members will attend **workshops, trade fairs and webinars** with non-academic stakeholders (e.g. farmers, horticulturists, growers, policy makers), e.g. the Global Agriculture Technology Summit, to disseminate relevant project results, technologies and interests.					

Impact

2.3.1.2 Plan for public engagement

Table 2.3.1.2. Plan for public engagement					
	Main activities	**Timing**	**Target Audience**	**KPIs**	**Dissemination Level**
1	Engagement activities with young people (8-12 years old)	M8-48	Young public	>15-20 young people/online session; 200-300 young people; 11 school visits	PU
EpiSeedLink aims to improve young people's understanding of science, stimulating their interest in science. Fellows supported by Cell EXPLORERS (CE) will organise two activities. ***In month 8***, organised by CE, Fellows will perform the online activity, 'Fantastic DNA in a box', with young people (8-12 years old), within CE's established network of schools and young groups, to guide them through the protocol, explain what DNA is, and encourage questions. ***In month 18***, working as a team and supported by CE, Fellows will create the ***EpiSeedLink Germination Kit***, consisting of instructions, background information and materials for a ***face-to-face activity with 8-12 years-old young people.*** The kit and activity will be designed to excite scientific curiosity through an easy and enjoyable practical. With the kit, Fellows will visit schools or young people groups (e.g. boy/girl scouts) in their country of residence and/or origin (depending on language constraints). Schools will be contacted through personal contacts, communication/education officers of the Bs' institutions, or advertisement through online teachers' associations (e.g. Spain – AEPE ; Ireland - INTO). Protocols, guidelines and list of materials of the *EpiSeedLink Germination* activity will be shared through *EpiSeedLink* webpage as well as PE (CE; Scientixt) and educational (EUSEA; SchoolEducationGateway) online associations as part of *EpiSeedLink* PE legacy.				
2	Engagement of a diverse audience	M30-41	Public at large	300-400 attendees; 11 events	PU
During year 3, Fellows will also address the importance of engaging with a broader audience and will focus on developing activities adapted to a diverse public. Hereby, *EpiSeedLink* aims to allow Fellows to identify their most suitable PE activity and target public. Hence, a list of possible PE events in each of the Bs' countries will be shared with them as starting point to select an activity (e.g. *Fascination of Plants Day*- all EU countries; *National Ploughing Championships* – Ireland; *Semana de la Ciencia* – Spain; *Nuit Sciences et Lettres* – France; *Open Day Amsterdam Science Park* – Netherlands; *Nacht schafft Wissen* – Germany; *Scientifica - Zurich's Research Fair* – Switzerland; etc.).					
3	*EpiSeedLink* Website PE page	M6-48 (+60 Mos)	Public at large	>1,000 visitors	PU
An important component of the *EpiSeedLink* website will be PE and dissemination of the outreach resources developed by Fellows. Fellows will actively participate in maintenance and updating of the ***EpiSeedLink* website PE page dedicated to the general public** using an attractive, direct and non-technical language suitable for a broad and non-specialist audience. In addition to the PE activities, this page will also announce and contain PE stories and other PE materials, resources (videos, podcasts, protocols, press notes, etc).					

Quality and Efficiency of the Implementation

3.1.1 Network organisation

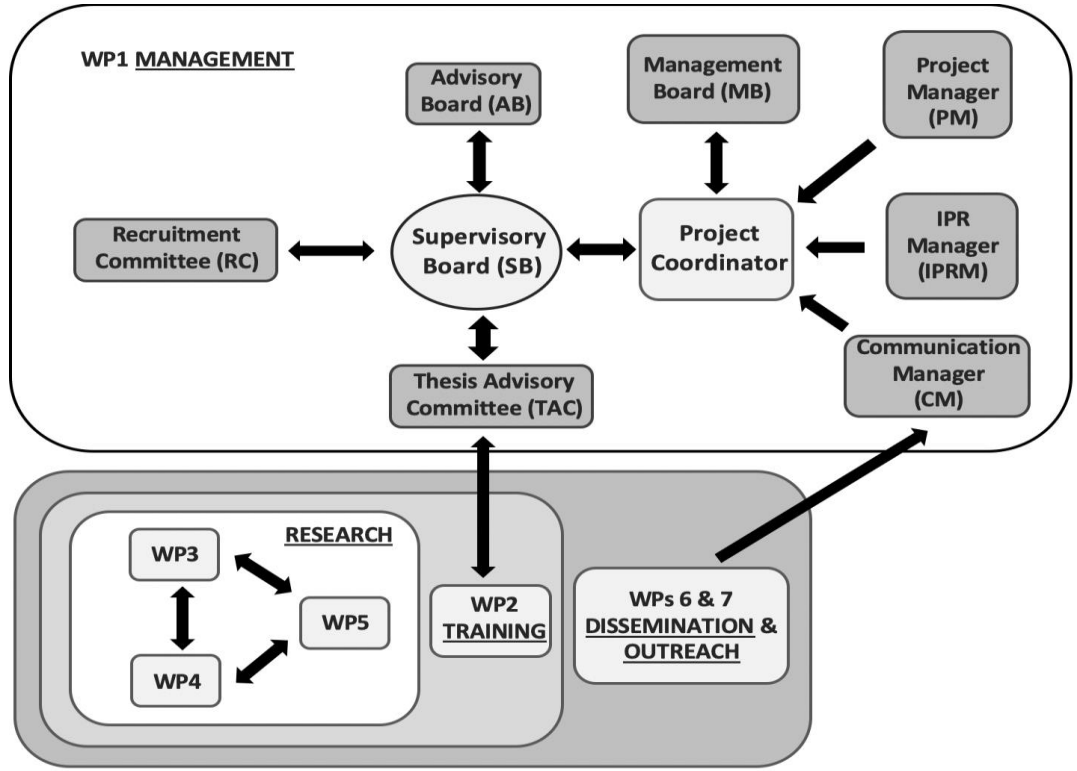


Figure 3.1. The structure of the *EpiSeedLink* network organisation. Arrows indicate the flow of information within the network

3.1 Quality and effectiveness of the work plan, assessment of risks and appropriateness of the effort assigned to work packages

Table 3.1 e Implementation Risks

Description of risk (indicate level of (i) likelihood, and (ii) severity: Low/Medium/High)	Work package(s) involved	Proposed risk-mitigation measures
Delay in recruitment and vacant positions (i) low; (ii) high	WP1	Positions will be advertised within Mo1. Contingency plans will be agreed with the coordinator and supervisor in case of Fellows starting after Mo6. Reserve candidates will ensure all positions are taken.
Non-satisfactory progression of Fellow (i) medium; (ii) high	WP1-5	Measures discussed with the TAC and eventually the SB. The TAC will assess progression every three months instead of every six months.
Fellow quits (i) low; (ii) high	All WPs	Follow up progression by the TAC will prevent and solve issues. If not, SB will allocate remaining funds to cover the 4th year of another Fellow
Disagreement between members of the consortium or between supervisor and Fellow (i) low; (ii) medium	WP1	The work relationships among all participants are stated in the CA. If it is not well defined, it will be discussed by the SB, who will resolve by voting (3.1.3).
Conflict between partners on IPR (i) low; (ii) medium	WP1, WP6	The IPRM will advise the Coordinator how to resolve on the matter. The background IP register of each partner will be included in the CA.
Fellow cannot do a secondment or a course (i) medium; (ii) medium	WP1, WP2	Re-scheduling of secondment; didactic material made available to the Fellow; alternative course providing the same knowledge will be found.
Scheduled training course cannot be done (i) medium; (ii) low	WP1, WP2	If teacher/provider is affected, find a substitute and keep the schedule as planned; if not possible, re-schedule the course.
Shut down of a facility/equipment (eg server) (i) low; (ii) high	WP1	Transfer activities to other facilities in the network; the Data Management Plan (see 1.2.5) ensures meta-data is not lost.
Poor germination of a lot of oilseed rape seeds to be used in various IRPs (i) low; (ii) medium	WP1, WP3-5	At least one additional lot of fresh seeds for each line will be available at DSV for distribution.
High variability in seed priming (i) low; (ii) medium	WP1, WP5	Common protocols for seed priming of Arabidopsis and oilseed rape and common growing conditions will be used by all partners.
Formulation issues with biostimulants (i) low; (ii) medium	WP5	Chemists will re-formulate where required to ensure consistency in physicochemical characteristics (e.g. solubility).
Pandemics (e.g. covid-19) (i) medium; (ii) high	All WPs	If restrictions on travel and secondments occur, all efforts will be made to conduct training remotely where possible, e.g. via VC.

3.1.8 Environmental aspects in light of the MSCA Green Charter

RESEARCHER, INSTITUTIONAL AND CONSORTIUM RELATED MEASURES	
Measures covered	Specific actions
Sustainability and environmental considerations in teaching and training	•All the teaching and learning materials will be distributed digitally •Green-purchasing for all project-related materials
Increasing researcher's environmental awareness	•A course on "Environmental awareness for researchers" (course #19) is programmed during the Kick-off Meeting
Minimize the production of waste as a result of the project	•All partner's academic Institutions and the partner companies have implemented measures for waste collection, following the policy of each country and of the EU
Minimize the use of water, energy and other scarce resources	•Non-academic partners use plant growth chambers with LED lighting systems; academic partners are transitioning to LED •All partners use automatic watering system and/or manual, minimizing the waste of water
Prioritize low carbon forms of transportation	•Face-to-face meetings will be held in cities accessible by train or direct flight •Domestic flights won't be used
VC when physical presence is not necessary	•All management-related meetings will be done by VC

3.2.2 Consortium composition and exploitation of participating organisations' complementarities

Table 3.1f Complementarities of Bs and APs

B & AP[1]	RESEARCH							SOFT AND TRANSFERABLE SKILLS			
	Epigenomics	Protein Res	Plant Physiology			Cell Biol	Bioinformatics	Commu & Open Science	Outreach	Ethics, Gender, PCD[3] & Green	IPR
			Stress	Pri[2]	Crop						
CSIC-CNB	X	X	X							Ethics	
CSIC-IBMCP	X	X	X								
CSIC-CBGP	X	X	X		X						
ENS	X		X	X							
NUIG	X			X	X				Outreach	Gender	
UREG	X	X	X								
UCA	X		X			X					
UVA	X		X		X						
BIOAT				X	X						
DSV			X	X	X						
UZH	X	X	X		X	X	X				
CRAC										PCD	
Moile Moile								Present. skills			
PONS IP										Entrepreneurship	IPR
Science Craft								Writing			
Sequentia							X				
UDUS	X						X				
Nuspec Bioscience					X		X				
UPV								Open science		Environmental awareness	

[1]Bs in blue; APs in green. [2]Priming; [3]Advise on personal career development

- -Clearly and precisely define the problem to solve, the final objective, the benefits and the path (tasks) to accomplish it.
- -Identify your stakeholders.
- -Demonstrate that your network is the most suitable to accomplish such a goal.
- -Highlight the complementarities within the network. All partners must contribute evenly to the action in all aspects.
- -Contribution by the non-academic sector must be very meaningful (better if essential)
- -Apply the Triple-I rule whenever it is possible!! (Secondments, TACs,..)
- -Same for gender balance

- -Apply for International Project preparation grants: e.g. Acciones de Dinamización “Europa Investigación”
- -Communicate with the NCPs, EU grant officers,…
- -Get help from Consultancy companies
- -Distribute leadership and tasks for each section
- -Set up deadlines for completion of different stages of writing
- -Organize a meeting of the network prior to the submission
- -Use tables and figures to summarize the contents of each section.
- -Include methods/mechanisms/indicators to assess the success of each task/activity.
- -Mention the regulations/normative that apply to each section (add hyperlinks)

Muchas gracias