PRIMER MSCA Doctoral Network PhD Opportunities

About PRIMER

PRIMER (Enhancing Climate-Resilient Crops by Innovative Priming Strategies) is a Marie Skłodowska-Curie Doctoral Network (MSCA-DN) funded under Horizon Europe. It addresses the urgent challenge of climate change and rising temperatures threatening global agriculture. The network investigates how priming strategies—genetic, chemical, and physiological—can be used to improve thermotolerance in tomato, a globally important crop.

PRIMER combines cutting-edge technologies, including single-cell transcriptomics, advanced genomics, epigenetics, computational modelling, multi-scale phenotyping, and systems biology. It brings together 10 leading universities and research institutes, plus 15+ associated partners from academia and industry, offering an interdisciplinary and intersectoral training environment.

Benefits of Being a Doctoral Candidate in PRIMER

As a Doctoral Candidate (DC) in PRIMER, you will benefit from:

- A fully funded 3-year PhD position in a top European university or research institute.
- Competitive salary and allowances in line with MSCA rules (~€3400/month gross, plus mobility and family allowances where applicable).
- Enrollment in a structured PhD programme at the host university.
- Access to state-of-the-art facilities and expert supervision.
- Interdisciplinary training, workshops, and transferable skills courses tailored to your areer development.
- International secondments to partner institutions and industry, offering unique intersectoral exposure.
- Membership in a vibrant international network of early-career researchers working on plant resilience and climate adaptation.

Doctoral Candidate Projects

DC1 – Goethe University Frankfurt (GUF)

Priming-induced morphological and physiological adaptation of tomato to heat stress

DC2 – Goethe University Frankfurt (GUF)

Enhancing the priming capacity of tomato to heat stress by regulation of gene expression

DC3 – University of Göttingen (UGOE)

Regulation and role of autophagy in priming-induced stem cell activity and heat stress protection

DC4 – University of Glasgow (GLAS)

Mathematical modelling to decipher the mechanisms of priming, to alleviate heat stress in tomato

DC5 – Volcani Center, Israel (ARO)

Epigenetic regulation of thermotolerance priming in tomato for yield enhancement under stressful conditions

DC6 – Institute of Experimental Botany, Czech Academy of Sciences (IEB)
Gametophyte reproductive fitness under heat stress
DC7 – University of Potsdam (UP)
Control of leaf initiation at the shoot apical meristem by temperature priming
DC8 – University of Milan (UMIL)
Decoding the genetic makeup of priming
DC9 – University of Glasgow (GLAS)
The role of thermosensing and photomorphogenesis in priming plants for optimal thermotolerance
DC10 – Spanish National Research Council (CSIC), Valencia
Analysis of the genetic diversity in the responses to priming for heat tolerance in tomato
DC11 – University Paris-Saclay (UPS)
Role of chromatin structure and epigenetic modifications on priming in tomato
DC12 – Cyprus University of Technology (CUT)
Chemical and nanomaterial seed and plant priming for heat stress adaptation

DC1 – Goethe University Frankfurt (Germany)

Priming-induced morphological and physiological adaptation of tomato to heat stress

Job Information

Organisation/Company

Johann Wolfgang Goethe-Universität Frankfurt am Main (GUF)

Department

Institute for Molecular Biosciences / PRIMER Doctoral Network

Research Field

Biological sciences » Molecular biology
Biological sciences » Plant biology
Agricultural sciences » Crop science
Computer science » Systems biology

Researcher Profile

First Stage Researcher (R1)

Country

Germany

Application Deadline

15 October 2025 - 17:00 (Europe/Berlin)

Type of Contract

Temporary

Job Status

Full-time

Hours Per Week

40

Is the job funded through the EU Research Framework Programme?

Horizon Europe - MSCA

Marie Curie Grant Agreement Number

101227217

Is the Job related to staff position within a Research Infrastructure?

No

Offer Description

Applications are invited for **1 PhD position (Doctoral Candidate)** within the EU-funded *Marie Skłodowska-Curie Doctoral Network* project **PRIMER** (Enhancing Climate-Resilient Crops by Innovative Priming Strategies).

Background

PRIMER addresses the increasing threat of elevated temperatures to agriculture and food security by investigating how priming strategies (genetic, chemical, and physiological) can enhance thermotolerance in tomato crop. The network applies cutting-edge technologies including single-cell transcriptomics, computational modelling, advanced genomics, and phenotyping platforms. PRIMER aims to generate actionable knowledge to mitigate climate-related losses in crop yields and empower a new generation of researchers with expertise in plant stress biology.

Network

PRIMER consists of 10 beneficiaries and 15+ partner organisations across Europe and beyond, offering each Doctoral Researcher a rich interdisciplinary and intersectoral training environment. All researchers will participate in tailored training modules, secondments, workshops, and collaborative projects across the network.

Location
This position (DC2) will be hosted at **Goethe University Frankfurt am Main (Germany)** in the **Plant Molecular and Cell Biology Group** under the supervision of **Dr. Sotirios Fragkostefanakis**.

Doctoral Researcher Project – DC1
Title: Priming-Induced Morphological and Physiological Adaptation of Tomato to Heat Stress
Project Duration: 36 months
Project Description:
This project will investigate how heat stress priming induces morphological and physiological adaptations in tomato, focusing on reproductive development. The main objectives are: (1) to generate a comprehensive gene expression atlas for the floral meristem under control, stress, and primed conditions, (2) to model morphological changes in meristematic and reproductive tissues in response to priming using advanced imaging (e.g., light sheet microscopy, microCT), and (3) to generate and utilize marker lines that enable cell-specific monitoring of priming responses across tissues.
The expected results include the establishment of a tomato floral meristem expression atlas linked to priming responses, detailed characterization of 3D structural changes in heat-sensitive cells during priming, and the development of cell-specific reporter lines. In collaboration with industrial and academic partners, biosensor-based monitoring of physiological performance (e.g., photosynthesis, plant architecture, yield) will help identify optimized priming conditions. These results will also feed into predictive modelling efforts to capture how priming shapes morphology and physiological adaptation. Ultimately, this project will provide critical insights into how reproductive resilience to heat stress can be improved through priming, supporting PRIMER's overarching goal of developing priming-based strategies for climate-resilient crops.

Requirements
- MSc degree in Plant Biology, Molecular Biology, Biotechnology or related field
- Strong interest in cell biology, molecular biology, plant stress physiology
- Prior experience with molecular and cell biology techniques (e.g. DNA/RNA isolation, qPCR, cloning, advanced microscopy)
- Willingness to acquire computational skills related to imaging
- Ability to work in a collaborative and international research environment
- Excellent communication skills in English (written and spoken)

Languages
ENGLISH
Level: C1 Excellent

Additional Information
Benefits

- Competitive salary and allowances in line with MSCA-DN rules (~€3400/month gross living allowance, plus mobility and family allowances where applicable)
- Enrollment in PhD program at Goethe University
- Interdisciplinary training and career development activities
- Secondment(s) to partner institutions and industry
- Access to state-of-the-art facilities and expert supervision

Eligibility Criteria

- Must not hold a doctoral degree at the date of recruitment
- Must comply with MSCA mobility rule: not have resided or carried out their main activity in Germany for more than 12 months in the 36 months prior to recruitment

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Selection Process

- Eligibility check
- Evaluation of CV, academic record, and motivation
- Online interviews with shortlisted candidates
- Final decision and notification expected by October 2025

Inquiries : fragkost@bio.uni-frankfurt.de

Where to Apply

E-mail: i.hoehn@bio.uni-frankfurt.de / Subject title: PRIMER application

Application Documents

- CV
- Copies of degree certificates (with official English translation)
- Contact details of two academic referees
- Completed application form (attached with this document or download here: HTTPS://DOCS.GOOGLE.COM/DOCUMENT/D/1GBORSKJ6-FTBTS2KYL1X_LS9PAGZ94KS/EDIT?USP=DRIVE_LINK&OUID=100647924320702531685&RTPOF=TRUE&SD=TRUE)

DC2 – Goethe University Frankfurt (Germany)

Enhancing the priming capacity of tomato to heat stress by regulation of gene expression

Job Information

Organisation/Company

Johann Wolfgang Goethe-Universität Frankfurt am Main (GUF)

Department

Institute for Molecular Biosciences / PRIMER Doctoral Network

Research Field

Biological sciences » Molecular biology
Biological sciences » Plant biology
Agricultural sciences » Crop science
Computer science » Systems biology

Researcher Profile

First Stage Researcher (R1)

Country

Germany

Application Deadline

15 October 2025 - 17:00 (Europe/Berlin)

Type of Contract

Temporary

Job Status

Full-time

Hours Per Week

40

Is the job funded through the EU Research Framework Programme?

Horizon Europe - MSCA

Marie Curie Grant Agreement Number

101227217

Is the Job related to staff position within a Research Infrastructure?

No

Offer Description

Applications are invited for **1 PhD position (Doctoral Candidate)** within the EU-funded *Marie Skłodowska-Curie Doctoral Network* project **PRIMER** (Enhancing Climate-Resilient Crops by Innovative Priming Strategies).

Background

PRIMER addresses the increasing threat of elevated temperatures to agriculture and food security by investigating how priming strategies (genetic, chemical, and physiological) can enhance thermotolerance in tomato crop. The network applies cutting-edge technologies including single-cell transcriptomics, computational modelling, advanced genomics, and phenotyping platforms. PRIMER aims to generate actionable knowledge to mitigate climate-related losses in crop yields and empower a new generation of researchers with expertise in plant stress biology.

Network

PRIMER consists of 10 beneficiaries and 15+ associated partners across Europe and beyond, offering each Doctoral Researcher a rich interdisciplinary and intersectoral training environment. All researchers will participate in tailored training modules, secondments, workshops, and collaborative projects across the network.

Location
This position (DC2) will be hosted at **Goethe University Frankfurt am Main (Germany)** in the **Plant Molecular and Cell Biology Group** under the supervision of **Dr. Sotirios Fragkostefanakis**.

Doctoral Researcher Project – DC2
Title: Enhancing the Priming Capacity of Tomato to Heat Stress by Regulation of Gene Expression
Project Duration: 36 months
Project Description:
This project aims to uncover how transcription and splicing factors regulate heat stress priming and memory in tomato, contributing to PRIMER's objective of enhancing crop resilience through molecular priming strategies. The main objectives are: (1) to identify transcription and splicing factors that are responsive to priming stimuli, (2) to map associated epigenomic features (e.g. chromatin accessibility and histone modifications) using ATAC-seq and ChIP-seq, and (3) to functionally validate candidate regulators using CRISPR/Cas or RNAi in tomato. The expected results include the identification of key regulatory nodes involved in priming-induced thermotolerance, characterization of transcriptional and splicing landscapes during the primed state, and the generation of engineered tomato lines with altered priming capacity. These outcomes will contribute to building a predictive gene regulatory framework and feed into the modelling of heat resilience mechanisms, ultimately supporting the development of priming-based crop improvement strategies.

Requirements
- MSc degree in Plant Biology, Molecular Biology, Biotechnology or related field
- Strong interest in plant stress physiology, epigenetics, and transcriptomics
- Prior experience with molecular biology techniques (e.g. RNA isolation, qPCR, cloning)
- Familiarity with bioinformatics or willingness to acquire computational skills
- Ability to work in a collaborative and international research environment
- Excellent communication skills in English (written and spoken)

Languages
ENGLISH
Level: C1 Excellent

Additional Information
Benefits
- Competitive salary and allowances in line with MSCA-DN rules (~€3400/month gross living allowance, plus mobility and family allowances where applicable)
- Enrollment in PhD program at Goethe University
- Interdisciplinary training and career development activities

- Secondment(s) to partner institutions and industry
- Access to state-of-the-art facilities and expert supervision

Eligibility Criteria

- Must not hold a doctoral degree at the date of recruitment
- Must comply with MSCA mobility rule: not have resided or carried out their main activity in Germany for more than 12 months in the 36 months prior to recruitment

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Selection Process

- Eligibility check
- Evaluation of CV, academic record, and motivation
- Online interviews with shortlisted candidates
- Final decision and notification expected by October 2025

Inquiries : fragkost@bio.uni-frankfurt.de

Where to Apply

E-mail: i.hoehn@bio.uni-frankfurt.de / Subject title: PRIMER application

Application Documents

- CV
- Copies of degree certificates (with official English translation)
- Contact details of two academic referees
- Completed application form (attached with this document or download here: HTTPS://DOCS.GOOGLE.COM/DOCUMENT/D/1GBORSKJ6-FTBTS2KYL1X_LS9PAGZ94KS/EDIT?USP=DRIVE_LINK&OUID=100647924320702531685&RTPOF=TRUE&SD=TRUE)

DC3 – University of Göttingen (Germany)

Regulation and role of autophagy in priming-induced stem cell activity and heat stress protection

Job Information

Organisation/Company

University of Göttingen – Georg August University of Göttingen, Germany

Department

Molecular Stress Physiology of Plants / PRIMER Doctoral Network

Research Field

Biological sciences » Molecular genetics
Biological sciences: Molecular and cellular biology
Biological sciences » Plant Science

Researcher Profile

First Stage Researcher (R1)

Country

Germany

Application Deadline

15 October 2025 - 17:00 (Europe/Berlin)

Type of Contract

Temporary

Job Status

Full-time

Hours Per Week

40

Is the job funded through the EU Research Framework Programme?

Horizon Europe - MSCA

Marie Curie Grant Agreement Number

101227217

Is the Job related to a staff position within a Research Infrastructure?

No

Offer Description

Applications are invited for **1 PhD position (Doctoral Candidate)** within the EU-funded *Marie Skłodowska-Curie Doctoral Network* project **PRIMER** (Enhancing Climate-Resilient Crops by Innovative Priming Strategies).

Background

PRIMER addresses the increasing threat of elevated temperatures to agriculture and food security by investigating how priming strategies (genetic, chemical, and physiological) can enhance thermotolerance in the tomato crop. The network applies cutting-edge technologies, including single-cell transcriptomics, computational modelling, advanced genomics, and phenotyping platforms. PRIMER aims to generate actionable knowledge to mitigate climate-related losses in crop yields and empower a new generation of researchers with expertise in plant stress biology.

Network

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Location

This position **(DC3)** will be hosted **at the University of** Göttingen (Germany) within the department of **Molecular Stress Physiology of Plants** under the supervision of **Prof. Dr. Salma Balazadeh.**

Doctoral Researcher Project – DC3

Title: Regulation and role of autophagy in priming-induced stem cell activity and heat stress protection

Project Duration: 36 months

Project Description

In higher plants, the shoot apical meristem (SAM) is crucial for the development of aboveground organs and overall plant growth. While the molecular regulatory mechanisms that control SAM structure and maintenance under normal conditions are relatively well understood, much less is known about how the shoot apex, and the SAM in particular, responds to and recovers from abiotic stress.

In this project, we aim to investigate the role of autophagy in the SAM during thermopriming and in conferring protection against heat stress. The project will assess autophagy activity in the SAM, examine how its alteration affects SAM responses to heat, and analyze the transcriptional regulation of autophagy as well as proteins selectively targeted by this process. This research combines molecular, genetic, and cellular approaches to uncover the contribution of autophagy to thermomemory in the SAM. The project will include plant heat treatments, generation of transgenic lines, screening of mutants for heat responses, fluorescence and confocal microscopy, western blot analysis, and gene regulatory techniques such as RNA sequencing (RNA-seq), chromatin immunoprecipitation (ChIP), and electrophoretic mobility shift assays (EMSA), among others.

Requirements

- BSc and MSc (or equivalent) degree in Cell and Molecular Biology, Genetics, Biotechnology, or related field
- Strong interest in plant cell and molecular biology
- Prior experience with plants, molecular biology, and imaging techniques (e.g., PCR, genotyping, RNA isolation, qPCR, cloning, western blotting, confocal microscopy)
- Familiarity with bioinformatics or willingness to acquire computational skills
- Ability to work in a collaborative and international research environment
- Excellent communication skills in English (written and spoken)

~~**Languages**~~

~~**ENGLISH**~~

~~**Level**: C1 (advanced)~~

Additional Information

Benefits

- Competitive salary and allowances in line with MSCA-DN rules (~€3400/month gross living allowance, plus mobility and family allowances where applicable)

- Enrollment in the PhD program at the University of Göttingen, Germany
- Interdisciplinary training and career development activities
- Secondment(s) to partner institutions and industry
- Access to state-of-the-art facilities and expert supervision

Eligibility Criteria

- Must not hold a doctoral degree on the date of recruitment
- Must comply with the MSCA mobility rule: not have resided or carried out their main activity in Germany for more than 12 months in the 36 months prior to recruitment

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Selection Process

- Eligibility check
- Evaluation of CV, academic record, and motivation
- Online interviews with shortlisted candidates
- Final decision and notification expected by October 2025

Inquiries: Prof. Salma Balazadeh- Salma.balazadeh@uni-goettingen.de

Where to Apply

Applications should be sent to:

E-mail: Anja.Auspurg@biologie.uni-goettingen.de

Subject title: PRIMER application /Balazadeh lab

Application Documents (<u>combined into a single PDF</u>):

- Curriculum Vitae (CV)
- Copies of degree certificates (with official English translation)
- Contact details of two academic referees
- Completed application form (attached with this document or download here: HTTPS://DOCS.GOOGLE.COM/DOCUMENT/D/1GBORSKJ6-FTBTS2KYL1X_LS9PAGZ94KS/EDIT?USP=DRIVE_LINK&OUID=100647924320702531685&RTPOF=TRUE&SD=TRUE)

DC4 – University of Glasgow (UK)

Mathematical modelling to decipher the mechanisms of priming, to alleviate heat stress in tomato

Job Information

Organisation/Company

University of Glasgow

Department

School of Molecular Biosciences / PRIMER Doctoral Network

Research Field

Mathematics » Mathematical modelling
Computer science » Systems biology
Biological sciences » Plant biology
Biological sciences » Molecular and cellular biology

Researcher Profile

PGR

Country

UK

Application Deadline

15 October 2025 - 16:00 (British Summer Time) / 17:00 (Central European Summer Time)

Type of Contract

Temporary

Job Status

Full-time

Hours Per Week

40

Is the job funded through the EU Research Framework Programme?

Horizon Europe - MSCA

Marie Curie Grant Agreement Number

101227217

Is the Job related to staff position within a Research Infrastructure?

No

Offer Description

Applications are invited for **1 PhD position (Doctoral Candidate)** within the EU-funded *Marie Skłodowska-Curie Doctoral Network* project **PRIMER** (Enhancing Climate-Resilient Crops by Innovative Priming Strategies).

Background

PRIMER addresses the increasing threat of elevated temperatures to agriculture and food security by investigating how priming strategies (genetic, chemical, and physiological) can enhance thermotolerance in tomato crop. The network applies cutting-edge technologies including single-cell transcriptomics, computational modelling, advanced genomics, and phenotyping platforms. PRIMER aims to generate actionable knowledge to mitigate climate-related losses in crop yields and empower a new generation of researchers with expertise in plant stress biology.

Network

PRIMER consists of 10 beneficiaries and 15+ associated partners across Europe and beyond, offering each Doctoral Researcher a rich interdisciplinary and intersectoral training environment. All researchers will participate in tailored training modules, secondments, workshops, and collaborative projects across the network.

Location
This position will be hosted at **the University of Glasgow (UK)** within the **School of Molecular Biosciences** under the supervision of **Dr. Rea Antoniou-Kourounioti**.

Doctoral Researcher Project – DC4
Title: Mathematical modelling to decipher the mechanisms of priming, to alleviate heat stress in tomato
Project Duration: 36 months
Project Description:
This project aims to uncover the molecular mechanisms of priming through the development of mathematical models, contributing to PRIMER's objective of enhancing crop resilience through molecular priming strategies. The main objectives are: (1) To develop models for heat stress response and priming in the model plant *Arabidopsis thaliana* and in tomato, using spatial, molecular and genetic information. (2) To use these models to investigate the molecular mechanism of how priming protects meristem function against heat stress. (3) To theoretically optimise priming efficiency by *in silico* mutations and heat treatments in the model to make predictions useful for breeding targets and agricultural interventions. The expected results include a validated mathematical model which will be a digital twin of the biological system, based on the molecular mechanism, thus allowing us to develop and test specific hypotheses of how priming protects meristem function and the identification of optimum scenarios for each desired trait as well as how to maximise these simultaneously, avoiding trade-offs e.g. between robustness and yield.

Requirements
- MSc degree in Mathematics, Computer Science, Bioinformatics, Physics or similar
- Strong interest in applying mathematical and computational methods to biological problems
- Prior experience with programming, preferably for computational simulation
- Familiarity with bioinformatics or willingness to acquire these skills
- Ability to work in a collaborative and international research environment
- Excellent communication skills in English (written and spoken)

Languages
ENGLISH
Level: C1 Excellent

Additional Information
Benefits
- Competitive salary and allowances in line with MSCA-DN rules (~€3400/month gross living allowance, plus mobility and family allowances where applicable)
- Enrollment in PhD program at the University of Glasgow
- Interdisciplinary training and career development activities

- Secondment(s) to partner institutions and industry
- Access to state-of-the-art facilities and expert supervision

Eligibility Criteria

- Must not hold a doctoral degree at the date of recruitment
- Must comply with MSCA mobility rule: not have resided or carried out their main activity in the UK for more than 12 months in the 36 months prior to recruitment

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Selection Process

- Eligibility check
- Evaluation of CV, academic record, and motivation
- Online interviews with shortlisted candidates
- Final decision and notification expected by October 2025

Inquiries : ReaLaila.AntoniouKourounioti@glasgow.ac.uk

Where to Apply

E-mail: ReaLaila.AntoniouKourounioti@glasgow.ac.uk / Subject title: PRIMER application

Application Documents

- CV
- Copies of degree certificates (with official English translation)
- Contact details of two academic referees
- Completed application form (attached with this document or download here: HTTPS://DOCS.GOOGLE.COM/DOCUMENT/D/1GBORSKJ6-FTBTS2KYL1X_LS9PAGZ94KS/EDIT?USP=DRIVE_LINK&OUID=100647924320702531685&RTPOF=TRUE&SD=TRUE)

DC5 – Volcani Center, Israel (Israel)

Epigenetic regulation of thermotolerance priming in tomato for yield enhancement under stressful conditions

Job Information

Organisation/Company

Agricultural Research Organization – Volcani Institute (ARO)

Department

Institute of Plant Sciences / PRIMER Doctoral Network

Research Field

Biological sciences » Molecular genetics
Biological sciences » Molecular biology
Biological sciences » Plant biology
Agricultural sciences » Crop science

Researcher Profile

Rank "B" (senior lecturer)

Country

Israel

Application Deadline

15 October 2025 - 17:00 (Europe/Berlin)

Type of Contract

Temporary

Job Status

Full-time

Hours Per Week

40

Is the job funded through the EU Research Framework Programme?

Horizon Europe - MSCA

Marie Curie Grant Agreement Number

101227217

Is the Job related to staff position within a Research Infrastructure?

No

Offer Description

Applications are invited for **1 PhD position (Doctoral Candidate)** within the EU-funded *Marie Skłodowska-Curie Doctoral Network* project **PRIMER** (Enhancing Climate-Resilient Crops by Innovative Priming Strategies).

Background

PRIMER addresses the increasing threat of elevated temperatures to agriculture and food security by investigating how priming strategies (genetic, chemical, and physiological) can enhance thermotolerance in the tomato crop. The network applies cutting-edge technologies including single-cell transcriptomics, computational

modelling, advanced genomics, and phenotyping platforms. PRIMER aims to generate actionable knowledge to mitigate climate-related losses in crop yields and empower a new generation of researchers with expertise in plant stress biology.

Network

PRIMER consists of 10 beneficiaries and 15+ associated partners across Europe and beyond, offering each Doctoral Researcher a rich interdisciplinary and intersectoral training environment. All researchers will participate in tailored training modules, secondments, workshops, and collaborative projects across the network.

Location

This position will be hosted at **Volcani Institute (Israel)** within the **Institute of Plant Sciences** under the supervision of **Dr. Michal Lieberman-Lazarovich**.

Doctoral Researcher Project – DC5

Title: Epigenetic regulation of thermotolerance priming in tomato for yield enhancement under stressful conditions

Project Duration: 36 months

Project Description:

This project aims to elucidate the involvement of epigenetic factors (DNA methylation and histone modifications) in priming for thermotolerance in tomato, contributing to PRIMER's objective of enhancing crop resilience through molecular priming strategies. The main objectives are: (1) to identify genes and transcriptional networks that are responsive to priming stimuli, (2) to map associated epigenomic features (e.g. chromatin accessibility, DNA methylation and histone modifications) using WGBS, ATAC-seq and ChIP-seq, and (3) to functionally validate candidate regulators using CRISPR/Cas for epigenetic editing in tomato. The expected results include the identification of key regulatory nodes involved in priming-induced thermotolerance, characterization of transcriptional and epigenetic landscapes during the primed state, and the generation of engineered tomato lines with altered thermotolerance capacity. These outcomes will contribute to building a predictive gene regulatory framework and feed into the modelling of heat resilience mechanisms, ultimately supporting the development of priming-based crop improvement strategies.

Requirements

- MSc degree in Plant Biology, Molecular Biology, Biotechnology or related field
- Strong interest in plant stress physiology, epigenetics, and transcriptomics
- Prior experience with molecular biology techniques (e.g. DNA and RNA isolation, qPCR, cloning)
- Prior experience with whole-plant procedures
- Ability to work in a collaborative and international research environment
- Excellent communication skills in English (written and spoken)

- Bioinformatic skills – an advantage

Languages
ENGLISH
Level: C1 Excellent

Additional Information
Benefits

- Competitive salary and allowances in line with MSCA-DN rules (~€3400/month gross living allowance, plus mobility and family allowances where applicable)
- Enrollment in PhD program at The Hebrew University of Jerusalem (Faculty of Agriculture)
- Interdisciplinary training and career development activities
- Secondment(s) to partner institutions and industry
- Access to state-of-the-art facilities and expert supervision

Eligibility Criteria

- Must not hold a doctoral degree at the date of recruitment
- Must comply with MSCA mobility rule: not have resided or carried out their main activity in Israel for more than 12 months in the 36 months prior to recruitment

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Selection Process

- Eligibility check
- Evaluation of CV, academic record, and motivation
- Online interviews with shortlisted candidates
- Final decision and notification expected by October 2025

Inquiries: michall@volcani.agri.gov.il

Where to Apply
E-mail: michall@volcani.agri.gov.il / Subject title: PRIMER application
Application Documents

- CV
- Copies of degree certificates (with official English translation)
- Contact details of two academic referees
- Completed application form (attached with this document or download here: HTTPS://DOCS.GOOGLE.COM/DOCUMENT/D/1GBORSKJ6-FTBTS2KYL1X_LS9PAGZ94KS/EDIT?USP=DRIVE_LINK&OUID=100647924320702531685&RTPOF=TRUE&SD=TRUE)

DC6 – Institute of Experimental Botany, Czech Academy of Sciences (Czech Republic)

Gametophyte reproductive fitness under heat stress

Job Information

Organisation/Company

Czech Academy of Sciences, Institute of Experimental Botany (IEB)

Department

Laboratory of Pollen Biology / PRIMER Doctoral Network

Research Field

Biological sciences » Molecular biology
Biological sciences » Plant biology
Agricultural sciences » Crop science
Computer science » Systems biology

Researcher Profile

First Stage Researcher (R1)

Country

Czech Republic

Application Deadline

15 October 2025 - 17:00 (Europe/Berlin/Prague)

Type of Contract

Temporary

Job Status

Full-time

Hours Per Week

40

Is the job funded through the EU Research Framework Programme?

Horizon Europe - MSCA

Marie Curie Grant Agreement Number

101227217

Is the Job related to staff position within a Research Infrastructure?

No

Offer Description

Applications are invited for **1 PhD position (Doctoral Candidate)** within the EU-funded *Marie Skłodowska-Curie Doctoral Network* project **PRIMER** (Enhancing Climate-Resilient Crops by Innovative Priming Strategies).

Background

PRIMER addresses the increasing threat of elevated temperatures to agriculture and food security by investigating how priming strategies (genetic, chemical, and physiological) can enhance thermotolerance in tomato crop. The network applies cutting-edge technologies including single-cell transcriptomics, computational modelling, advanced genomics, and phenotyping platforms. PRIMER aims to generate actionable knowledge to mitigate climate-related losses in crop yields and empower a new generation of researchers with expertise in plant stress biology.

Network
PRIMER consists of 10 beneficiaries and 15+ associated partners across Europe and beyond, offering each Doctoral Researcher a rich interdisciplinary and intersectoral training environment. All researchers will participate in tailored training modules, secondments, workshops, and collaborative projects across the network.

Location
This position (DC6) will be hosted at **Czech Academy of Sciences, Institute of Experimental Botany (Prague, Czech Republic)** in the **Laboratory of Pollen Biology** under the supervision of **Prof. David Honys**.

Doctoral Researcher Project – DC6
Title: Gametophyte reproductive fitness under heat stress
Project Duration: 36 months
Project Description:
This project aims to identify and characterise critical mechanisms for pollen thermotolerance and priming to high temperatures with focus on translation and its regulation in Arabidopsis and tomato, contributing to PRIMER's objective of enhancing crop resilience through molecular priming strategies. The main objectives are: (1) to describe the epitranscriptomic and translational landscape in pollen related to priming using snRNA-seq, m^6A-seq, and Ribo-seq, (2) to identify and characterise priming-related genes and proteins, namely translation factors and RNA-binding proteins, and (3) to functionally validate candidate regulators using CRISPR/Cas or RNAi in tomato and to generate transgenic and mutant lines with enhanced priming capacity for increased gametophytic thermotolerance. The expected results include the identification of key regulatory proteins involved in priming-induced thermotolerance, characterization of translational landscapes during the primed state, and the generation of engineered tomato lines with improved priming capacity. These outcomes will contribute to building a predictive gene and protein regulatory framework and feed into the modelling of heat resilience mechanisms, ultimately supporting the development of priming-based crop improvement strategies.

Requirements
- MSc degree in Plant Biology, Molecular Biology, Biotechnology or related field
- Strong interest in plant reproduction, stress physiology, molecular genetics, transcriptomics, proteomics, and bioinformatics
- Prior experience with molecular biology techniques (e.g. RNA isolation, qPCR, cloning)
- Familiarity with bioinformatics or willingness to acquire computational skills
- Ability to work in a collaborative and international research environment including traveling to participating labs and companies
- Excellent communication skills in English (written and spoken)

Languages
ENGLISH
Level: C1 Excellent

Additional Information

Benefits

- Competitive salary and allowances in line with MSCA-DN rules (~€3400/month gross living allowance, plus mobility and family allowances where applicable)
- Enrolment in PhD program at Masaryk University
- Interdisciplinary training and career development activities
- Secondment(s) to partner institutions and industry
- Access to state-of-the-art facilities and expert supervision

Eligibility Criteria

- Must not hold a doctoral degree at the date of recruitment
- Must comply with MSCA mobility rule: not have resided or carried out their main activity in Czech Republic for more than 12 months in the 36 months prior to recruitment

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Selection Process

- Eligibility check
- Evaluation of CV, academic record, and motivation
- Online interviews with shortlisted candidates
- Final decision and notification expected by October 2025

Inquiries : honys@ueb.cas.cz

Where to Apply

E-mail: honys@ueb.cas.cz / Subject title: PRIMER application

Application Documents (combined into a single PDF document)

- Curriculum vitae (CV)
- Copies of degree certificates (with an official English translation)
- Contact details of two academic referees
- Completed application form (attached with this document or download here: HTTPS://DOCS.GOOGLE.COM/DOCUMENT/D/1GBORSKJ6-FTBTS2KYL1X_LS9PAGZ94KS/EDIT?USP=DRIVE_LINK&OUID=100647924320702531685&RTPOF=TRUE&SD=TRUE)

DC7 – University of Potsdam (Germany)

Control of leaf initiation at the shoot apical meristem by temperature priming

Job Information

Organisation/Company

University of Potsdam, Germany (UP)

Department

Institute of Biochemistry and Biology, Department Molecular Biology

Research Field

Biological sciences » Molecular biology
Biological sciences » Plant biology
Agricultural sciences » Crop science

Researcher Profile

First Stage Researcher (R1)

Country

Germany

Application Deadline

15 October 2025 - 17:00 (Europe/Berlin)

Type of Contract

Temporary

Job Status

Full-time

Hours Per Week

40

Is the job funded through the EU Research Framework Programme?

Horizon Europe - MSCA

Marie Curie Grant Agreement Number

101227217

Is the Job related to staff position within a Research Infrastructure?

No

Offer Description

Applications are invited for **1 PhD position (Doctoral Candidate)** within the EU-funded *Marie Skłodowska-Curie Doctoral Network* project **PRIMER** (Enhancing Climate-Resilient Crops by Innovative Priming Strategies).

Background

PRIMER addresses the increasing threat of elevated temperatures to agriculture and food security by investigating how priming strategies (genetic, chemical, and physiological) can enhance thermotolerance in tomato crop. The network applies cutting-edge technologies including single-cell transcriptomics, computational modelling, advanced genomics, and phenotyping platforms. PRIMER aims to generate actionable knowledge to mitigate climate-related losses in crop yields and empower a new generation of researchers with expertise in plant stress biology.

Network

PRIMER consists of 10 beneficiaries and 15+ partner organisations across Europe and beyond, offering each Doctoral Researcher a rich interdisciplinary and intersectoral training environment. All researchers will participate in tailored training modules, secondments, workshops, and collaborative projects across the network.

Location

This position will be hosted by the **University of Potsdam (Germany)** in the **Molecular Biology Department** under the supervision of **Prof. Dr. Bernd Mueller-Roeber** and **Dr. Omid Karami.**

Doctoral Researcher Project – DC7
Title: Control of leaf initiation at the shoot apical meristem by temperature priming
Project Duration: 36 months

Project Description:
This project will investigate how heat stress priming controls leaf initiation at the shoot apical meristem (SAM) by temperature priming. The main objectives are: (1) The comparative analysis of the transcriptomes and ATAC-seq profiles of Arabidopsis and tomato plants in shoot apical flanks leading to the formation of new leaves upon thermopriming. 2) Functional analysis of transcription factors regulating the initiation of new leaves after a priming thermostress. 3) The transfer of knowledge from Arabidopsis to tomato.

The expected results include:
1) The doctoral student involved in the project will conduct transcriptome and ATAC-seq analyses of shoot apical flanks where leaf initiation occurs in *Arabidopsis thaliana* and tomato plants during the heat priming period (within a time frame of 6-48 h). Laser capture microdissection will collect apical meristem flanks. Computational analysis will identify genes affected by thermopriming in leaf initiation cells. Promoter-reporter lines will assess the impact of thermopriming on known leaf initiation genes in Arabidopsis.
2) The doctoral student will delve into thermopriming-regulated transcription factors (TFs) and their role in leaf initiation at the shoot apex by analyzing leaf initiation and development in Arabidopsis mutants (T-DNA insertion lines, CRISPR-induced mutants, overexpressors) under thermopriming conditions.
3) The doctoral candidate will identify promising gene candidates from the results and further study their functions using CRISPR-generated mutants in tomato to comprehend thermopriming-induced leaf development.

Requirements
- MSc degree in Plant Biology, Molecular Biology, Synthetic Biology, Biotechnology or related fields
- Strong interest in plant molecular/cell/synthetic biology, plant stress physiology, the effect of climate change on plant development and growth
- Prior experience with molecular and cell biology techniques (e.g. DNA/RNA isolation, qPCR, cloning, advanced microscopy)
- Willingness to acquire computational skills related to DNA and RNA data analyses
- Ability to work in a collaborative and international research environment
- Excellent communication skills in English (written and spoken)

Additional Information
Benefits
- Competitive salary and allowances in line with MSCA-DN rules (~€3400/month gross living allowance, plus mobility and family allowances where applicable)
- Enrollment in PhD program at the University of Potsdam (https://www.uni-potsdam.de/en/university-of-potsdam)
- Interdisciplinary training and career development activities
- Secondment(s) to partner institutions and industry

- Access to state-of-the-art facilities and expert supervision

Eligibility Criteria

- Must not hold a doctoral degree at the date of recruitment
- Must comply with MSCA mobility rule: not have resided or carried out their main activity in Germany for more than 12 months in the 36 months prior to recruitment

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Selection Process

- Eligibility check
- Evaluation of CV, academic record, and motivation
- Online interviews with shortlisted candidates
- Final decision and notification expected by October 2025

Inquiries : bmr@uni-potsdam.de

Where to Apply

E-mail: inowak@uni-potsdam.de / Subject title: PRIMER application

Application Documents (combined into a single PDF document)

- Curriculum Vitae (CV)
- Copies of degree certificates (with official English translation)
- Contact details of two academic referees
- Completed application form (attached with this document or download here: HTTPS://DOCS.GOOGLE.COM/DOCUMENT/D/1GBORSKJ6-FTBTS2KYL1X_LS9PAGZ94KS/EDIT?USP=DRIVE_LINK&OUID=100647924320702531685&RTPOF=TRUE&SD=TRUE)

DC8 – University of Milan (Italy)

Decoding the genetic makeup of priming

Job Information

Organisation/Company

Università degli studi di Milano

Department

Department of BioSciences / PRIMER Doctoral Network

Research Field

Biological sciences » Molecular biology
Biological sciences » Plant biology
Agricultural sciences » Crop science
Computer science » Systems biology

Researcher Profile

PhD - First Stage Researcher (R1)

Country

Italy

Application Deadline

15 October 2025 - 17:00 (Europe/Berlin)

Type of Contract

Temporary

Job Status

Full-time

Hours Per Week

40

Is the job funded through the EU Research Framework Programme?

Horizon Europe - MSCA

Marie Curie Grant Agreement Number

101227217

Is the Job related to staff position within a Research Infrastructure?

No

Offer Description

Applications are invited for **1 PhD position (Doctoral Candidate)** within the EU-funded *Marie Skłodowska-Curie Doctoral Network* project **PRIMER** (Enhancing Climate-Resilient Crops by Innovative Priming Strategies).

Background

PRIMER addresses the increasing threat of elevated temperatures to agriculture and food security by investigating how priming strategies (genetic, chemical, and physiological) can enhance thermotolerance in the tomato crop. The network applies cutting-edge technologies including single-cell transcriptomics, computational modelling, advanced genomics, and phenotyping platforms. PRIMER aims to generate actionable knowledge to mitigate climate-related losses in crop yields and empower a new generation of researchers with expertise in plant stress-priming biology.

Network

PRIMER consists of 10 beneficiaries and 15+ associated partners across Europe and beyond, offering each Doctoral Researcher a rich interdisciplinary and intersectoral training environment. All researchers will participate in tailored training modules, secondments, workshops, and collaborative projects across the network.

Location

This position (DC8) will be hosted at **University of Milan (Italy)** in the **Plant Development Group** under the supervision of **Prof. Marta A. Mendes**.

Doctoral Researcher Project – DC8

Title: Decoding the genetic makeup of priming

Project Duration: 36 months

Project Description:

The PhD project aims to develop an innovative screening system to monitor priming effects at both tissue and whole-plant levels, with a special focus on flower development, gamete formation, and fruit set performance under heat stress. The candidate will investigate existing and newly generated mutant lines to identify key genes involved in priming, and extend this knowledge to the natural variation present in diverse tomato germplasm collections, pinpointing accessions with enhanced resilience traits. Through the integration of molecular genetics and high-throughput phenotyping, the project will deliver candidate genes, validated molecular targets, and promising tomato lines with superior priming capacity at the reproductive level. Beyond advancing crop resilience, this PhD will provide the candidate with unique opportunities for hands-on training in advanced functional genetics and plant reproductive biology, with a particular emphasis on gametophyte development under epigenetic regulation. Epigenetics will play a central role, as preliminary results have already identified methylation-defective mutants that exhibit increased resistance to heat stress, offering an exciting avenue for understanding and exploiting heritable thermotolerance mechanisms.

Requirements

- MSc degree in Plant Biology, Molecular Biology, Biotechnology or related field
- Strong interest in plant stress physiology, epigenetics, and transcriptomics
- Prior experience with molecular biology techniques (e.g. DNA/RNA isolation, qPCR, cloning)
- Familiarity with bioinformatics or willingness to acquire computational skills
- Ability to work in a collaborative and international research environment
- Excellent communication skills in English (written and spoken)

Languages

ENGLISH

Level: C1 Excellent

Additional Information

Benefits

- Competitive salary and allowances in line with MSCA-DN rules (~€3400/month gross living allowance, plus mobility and family allowances where applicable)
- Enrollment in PhD program at University of Milan

- Interdisciplinary training and career development activities
- Secondment(s) to partner institutions and industry
- Access to state-of-the-art facilities and expert supervision

Eligibility Criteria

- Must not hold a doctoral degree at the date of recruitment
- Must comply with MSCA mobility rule: not have resided or carried out their main activity in Italy for more than 12 months in the 36 months prior to recruitment

Selection Process

- Eligibility check
- Evaluation of CV, academic record, and motivation
- Online interviews with shortlisted candidates
- Final decision and notification expected by October 2025

Inquiries : marta.mendes@unimi.it

Where to Apply

E-mail: : marta.mendes@unimi.it / Subject title: PRIMER application _ DC8

Application Documents

- CV
- Copies of degree certificates (with an official English translation)
- Contact details of two academic referees
- Completed application form (attached with this document or download here: HTTPS://DOCS.GOOGLE.COM/DOCUMENT/D/1GBORSKJ6-FTBTS2KYL1X_LS9PAGZ94KS/EDIT?USP=DRIVE_LINK&OUID=100647924320702531685&RTPOF=TRUE&SD=TRUE)

DC9 – University of Glasgow (UK)

The role of thermosensing and photomorphogenesis in priming plants for optimal thermotolerance

Job Information

Organisation/Company

University of Glasgow, UK

Department

School of Molecular Biosciences / PRIMER Doctoral Network

Research Field

Biological sciences » Molecular genetics
Biological sciences » Molecular and cellular biology
Biological sciences » Plant Science

Researcher Profile

PGR

Country

UK

Application Deadline

15 October 2025 - 17:00 (Europe/Berlin)

Type of Contract

Temporary

Job Status

Full-time

Hours Per Week

40

Is the job funded through the EU Research Framework Programme?

Horizon Europe - MSCA

Marie Curie Grant Agreement Number

101227217

Is the Job related to staff position within a Research Infrastructure?

No

Offer Description

Applications are invited for **1 PhD position (Doctoral Candidate)** within the EU-funded *Marie Skłodowska-Curie Doctoral Network* project **PRIMER** (Enhancing Climate-Resilient Crops by Innovative Priming Strategies).

Background

PRIMER addresses the increasing threat of elevated temperatures to agriculture and food security by investigating how priming strategies (genetic, chemical, and physiological) can enhance thermotolerance in tomato crop. The network applies cutting-edge technologies including single-cell transcriptomics, computational modelling, advanced genomics, and phenotyping platforms. PRIMER aims to generate actionable knowledge to mitigate climate-related losses in crop yields and empower a new generation of researchers with expertise in plant stress biology.

Network

PRIMER consists of 10 beneficiaries and 15+ associated partners across Europe and beyond, offering each Doctoral Researcher a rich interdisciplinary and intersectoral training environment. All researchers will participate in tailored training modules, secondments, workshops, and collaborative projects across the network.

Location

This position **(DC9)** will be hosted at **the University of Glasgow (UK)** within the **School of Molecular Biosciences** under the supervision of **Dr. Eirini Kaiserli**.

Doctoral Researcher Project – DC9

Title: The role of thermosensing and photomorphogenesis in priming plants for optimal thermotolerance.

Project Duration: 36 months

Project Description

This PhD project aims to dissect how warm temperature and light cues interact to regulate plant development and stress resilience, focusing on *Arabidopsis thaliana* and tomato. The research will evaluate the effects of thermomorphogenic priming on key developmental processes, including flowering time, floral meristem differentiation, hypocotyl elongation, and stress resistance, through quantitative phenotypic and molecular analysis of mutant and overexpressing lines of photo- and thermosensory components under varied light and temperature regimes.

A central objective is to characterize the subnuclear localization of transcriptional regulators, photoreceptors, thermosenors and heat response factors within biomolecular condensates formed under specific light and temperature conditions. Using high-resolution imaging and interaction assays, the project will investigate the formation of temperature regulated nuclear hubs, contributing to the modelling of environmentally responsive nuclear networks.

To understand organ-specific responses, tissue-specific transcriptional profiling will be performed on organs showing significant sensitivity to elevated temperatures in both wild-type and thermoresponsive mutant lines. This will help assess the contribution of thermomorphogenesis pathways to heat stress priming, using experimental approaches in collaboration with other research groups.

Finally, the project will develop and test a targeted editing strategy in tomato to modulate TR function, identifying key mutations that promote thermotolerance without compromising growth. In parallel, the role of chemical priming in enhancing thermo-regulation will be explored. Collaborative efforts with GUF (Goethe University Frankfurt), ULEI (University of Leiden), and CSIC (Spanish National Research Council) will support the design and execution of these translational experiments in tomato.

This integrative approach will advance our understanding of how plants integrate temperature and light signals to optimize growth and survival, with direct applications for crop resilience in the face of climate change.

Requirements

- BSc and MSc (or equivalent) degree in Plant Biology, Molecular Biology, Genetics, Biotechnology or related field
- Strong interest in plant light signaling, plant physiology, cell biology, epigenetics, and transcriptomics
- Prior experience with molecular biology and imaging techniques (e.g. RNA isolation, qPCR, cloning, ChIP, western blot analysis, confocal microscopy)

- Familiarity with bioinformatics or willingness to acquire computational skills
- Ability to work in a collaborative and international research environment
- Excellent communication skills in English (written and spoken)

Languages
ENGLISH
Level: C1 Excellent

Additional Information
Benefits

- Competitive salary and allowances in line with MSCA-DN rules (~€3400/month gross living allowance, plus mobility and family allowances where applicable)
- Enrollment in PhD program at the University of Glasgow, UK
- Interdisciplinary training and career development activities
- Secondment(s) to partner institutions and industry
- Access to state-of-the-art facilities and expert supervision

Eligibility Criteria

- Must not hold a doctoral degree at the date of recruitment
- Must comply with MSCA mobility rule: not have resided or carried out their main activity in the UK for more than 12 months in the 36 months prior to recruitment

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Selection Process

- Eligibility check
- Evaluation of CV, academic record, and motivation
- Online interviews with shortlisted candidates
- Final decision and notification expected by October 2025

Inquiries : eirini.kaiserli@glasgow.ac.uk
Where to Apply
E-mail: eirini.kaiserli@glasgow.ac.uk / Subject title: **PRIMER application**
Application Documents

- CV
- Copies of degree certificates (with official English translation)
- Contact details of two academic referees
- Completed application form (attached with this document or download here: HTTPS://DOCS.GOOGLE.COM/DOCUMENT/D/1GBORSKJ6-FTBTS2KYL1X_LS9PAGZ94KS/EDIT?USP=DRIVE_LINK&OUID=100647924320702531685&RTPOF=TRUE&SD=TRUE)

If you require assistance before you apply:
https://www.gla.ac.uk/postgraduate/research/moleculargenetics/#tab=apply
mvls-gradschool@glasgow.ac.uk
Subject title: EU MCSA DTN **PRIMER application/ SMB/Kaiserli Lab**
After you have submitted your application: Admissions Enquiries form

DC10 – Spanish National Research Council, Valencia (Spain)

Analysis of the genetic diversity in the responses to priming for heat tolerance in tomato

Job Information

Organisation/Company

Agencia Consejo Superior de Investigaciones Cientificas (CSIC)

Department

Instituto de Biología Molecular y Celular de Plantas / PRIMER Doctoral Network

Research Field

Biological sciences » Molecular biology
Biological sciences » Plant biology
Agricultural sciences » Crop science
Computer science » Systems biology

Researcher Profile

First Stage Researcher (R1)

Country

Spain

Application Deadline

15 October 2025 - 17:00 (Europe/Madrid)

Type of Contract

Temporary

Job Status

Full-time

Hours Per Week

40

Is the job funded through the EU Research Framework Programme?

Horizon Europe - MSCA

Marie Curie Grant Agreement Number

101227217

Is the Job related to staff position within a Research Infrastructure?

No

Offer Description

Applications are invited for **1 PhD position (Doctoral Candidate)** within the EU-funded *Marie Skłodowska-Curie Doctoral Network* project **PRIMER** (Enhancing Climate-Resilient Crops by Innovative Priming Strategies).

Background

PRIMER addresses the increasing threat of elevated temperatures to agriculture and food security by investigating how priming strategies (genetic, chemical, and physiological) can enhance thermotolerance in tomato crop. The network applies cutting-edge technologies including single-cell transcriptomics, computational modelling, advanced genomics, and phenotyping platforms. PRIMER aims to generate actionable knowledge to mitigate climate-related losses in crop yields and empower a new generation of researchers with expertise in plant stress biology.

Network

PRIMER consists of 10 beneficiaries and 15+ associated partners across Europe and beyond, offering each Doctoral Researcher a rich interdisciplinary and intersectoral training environment. All researchers will participate in tailored training modules, secondments, workshops, and collaborative projects across the network.

Location

This position (DC10) will be hosted at **Instituto de Biología Molecular y Celular de Plantas in Valencia (Spain)** in the **Plant Genomics and Biotechnology lab** under the supervision of **Dr. Antonio Granell**.

Doctoral Researcher Project – DC10

Title: Analysis of the genetic diversity in the responses to priming for heat tolerance in tomato

Project Duration: 36 months

Project Description:

This project aims to uncover the molecular genetics basis for differences in priming for heat tolerance using genetic diversity collections and breeding materials that show increase heat tolerance thus contributing to PRIMER's objective of enhancing crop resilience through molecular priming strategies. The main objectives are: 1) Identification of genetic diversity for priming to HT in tomato a.Diversity in tomato for responses to priming (temperature) to HT, emphasis in reproductive structures. b. Specificity of priming (by primers or by processes /tissues) and crosstalk between tolerance genes and priming. 2. Understanding the molecular genetic basis of priming to HT in tomato a. QTL mapping of priming (temperature) using tomato introgession lines (ILs). b. Characterization of the priming to HT of introgression lines (ILs) carrying genes for high and low responses to priming. c. Characterization of the priming response to HT in stress tolerant and engineered tomato lines for increased tolerance. The expected results include:) A collection of tomato germplasm characterized for responses of priming for HT. A Network of priming responses across different primers and tissues /processes. A QTL map of stress responses including priming to stresses (heat) and candidate genes for priming derived from genomic analysis on selected materials and edited plants to evaluate them. The analysis of ILs carrying QTL or edited lines at the genomic, cell and physiological level and interactions between tolerances to different stresses.

Requirements

- MSc degree in Plant Breedding, Plant Genetics, Plant Biology, Molecular Biology, Biotechnology or related field
- Strong interest in plant breeding, stress physiology, epigenetics, and functional genomics
- Prior experience with genetics and molecular biology techniques (e.g. markers and genetic populations, RNA isolation, qPCR, cloning)
- Familiarity with bioinformatics or willingness to acquire computational skills
- Ability to work in a collaborative and international research environment including traveling to participating labs and companies
- Excellent communication skills in English (written and spoken)

Languages

ENGLISH
Level: C1 Excellent

Additional Information
Benefits

- Competitive salary and allowances in line with MSCA-DN rules (~€3400/month gross living allowance, plus mobility and family allowances where applicable)
- Enrollment in PhD program at Universidad Politecnica de Valencia
- Interdisciplinary training and career development activities
- Secondment(s) to partner institutions and industry
- Field trials and experiments in ENZA Zaden Almería a vegetables seeds company
- Access to state-of-the-art facilities and expert supervision

Eligibility Criteria

- Must not hold a doctoral degree at the date of recruitment
- Must comply with MSCA mobility rule: not have resided or carried out their main activity in Spain for more than 12 months in the 36 months prior to recruitment
- Must accept to do some of the activities at the participating company ENZA Zaden in Almería (Spain)

Selection Process

- Eligibility check
- Evaluation of CV, academic record, and motivation
- Online interviews with shortlisted candidates
- Final decision and notification expected by October 2025

Inquiries : agranell@ibmcp.upv.es

Where to Apply
E-mail: cpons@upvnet.upv.es / Subject title: PRIMER application
Application Documents

- CV
- Copies of degree certificates (with official English translation)
- Contact details of two academic referees
- Completed application form (attached with this document or download here: HTTPS://DOCS.GOOGLE.COM/DOCUMENT/D/1GBORSKJ6-FTBTS2KYL1X_LS9PAGZ94KS/EDIT?USP=DRIVE_LINK&OUID=100647924320702531685&RTPOF=TRUE&SD=TRUE)

DC11 – University Paris-Saclay (France)

Role of chromatin structure and epigenetic modifications on priming in tomato

Job Information

Organisation/Company

Université Paris Saclay

Department

Institute of Plant Sciences - Paris-Saclay (IPS2) / PRIMER Doctoral Network

Research Field

Biological sciences » Molecular biology
Biological sciences » Plant biology
Agricultural sciences » Crop science
Computer science » Systems biology

Researcher Profile

First Stage Researcher (R1)

Country

France

Application Deadline

15 October 2025 - 17:00 (Europe/Berlin)

Type of Contract

Temporary

Job Status

Full-time

Hours Per Week

40

Is the job funded through the EU Research Framework Programme?

Horizon Europe - MSCA

Marie Curie Grant Agreement Number

101227217

Is the Job related to staff position within a Research Infrastructure?

No

Offer Description

Applications are invited for **1 PhD position (Doctoral Candidate)** within the EU-funded *Marie Skłodowska-Curie Doctoral Network* project **PRIMER** (Enhancing Climate-Resilient Crops by Innovative Priming Strategies).

Background

PRIMER addresses the increasing threat of elevated temperatures to agriculture and food security by investigating how priming strategies (genetic, chemical, and physiological) can enhance thermotolerance in tomato crop. The network applies cutting-edge technologies including single-cell transcriptomics, computational modelling, advanced genomics, and phenotyping platforms. PRIMER aims to generate actionable knowledge to mitigate climate-related losses in crop yields and empower a new generation of researchers with expertise in plant stress biology.

Network

PRIMER consists of 10 beneficiaries and 15+ partner organisations across Europe and beyond, offering each Doctoral Researcher a rich interdisciplinary and intersectoral training environment. All researchers will participate in tailored training modules, secondments, workshops, and collaborative projects across the network.

Location

This position (11) will be hosted at **Paris Saclay University** in the **Chromosome dynamics group 'https://www.chromosomedynamics.com/)** under the supervision of **Pr. Moussa BENHAMED**.

Doctoral Researcher Project – DC11

Title: Role of chromatin structure and epigenetic modifications on priming in tomato

Project Duration: 36 months

Project Description:

This project will investigate the role of chromatin structure and epigenetic modifications on priming in tomato. The main objectives are: (1) to Perform single nuclei analysis of shoot apical meristem in primed plants, (2) to Investigate at the genome-wide level the epigenetic mechanisms driving tomato genome plasticity in response to heat stress, and (3) to Study the molecular mechanisms that control heat stress response and priming.

Requirements

- MSc degree in Plant Biology, Molecular Biology, Biotechnology or related field
- Strong interest in molecular biology, epigenetics and plant stress physiology
- Prior experience with molecular and cell biology techniques
- Willingness to acquire computational skills related to bioinformatics
- Ability to work in a collaborative and international research environment
- Excellent communication skills in English (written and spoken)

Languages

ENGLISH

Level: C1 Excellent

Additional Information

Benefits

- Competitive salary and allowances in line with MSCA-DN rules
- Enrollment in PhD program at Paris Saclay University
- Interdisciplinary training and career development activities
- Secondment(s) to partner institutions and industry
- Access to state-of-the-art facilities and expert supervision

Eligibility Criteria

- Must not hold a doctoral degree at the date of recruitment
- Must comply with MSCA mobility rule: not have resided or carried out their main activity in France for more than 12 months in the 36 months prior to recruitment

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Selection Process

- Eligibility check

- Evaluation of CV, academic record, and motivation
- Online interviews with shortlisted candidates
- Final decision and notification expected by October 2025

Inquiries : moussa.benhamed@universite-paris-saclay.fr

Where to Apply

E-mail: sophie.piquerez@universite-paris-saclay.fr / Subject title: PRIMER application

Application Documents

- CV
- Copies of degree certificates (with official English translation)
- Contact details of two academic referees
- Completed application form (attached with this document or download here: HTTPS://DOCS.GOOGLE.COM/DOCUMENT/D/1GBORSKJ6-FTBTS2KYL1X_LS9PAGZ94KS/EDIT?USP=DRIVE_LINK&OUID=100647924320702531685&RTPOF=TRUE&SD=TRUE)

DC12 – Cyprus University of Technology (Cyprus)

Chemical and nanomaterial seed and plant priming for heat stress adaptation

Job Information

Organisation/Company

Cyprus University of Technology (CUT)

Department

Department of Agricultural Sciences, Biotechnology & Food Science / PRIMER Doctoral Network

Research Field

Biological sciences » Molecular biology

Biological sciences » Plant biology

Agricultural sciences » Crop science

Researcher Profile

First Stage Researcher (R1)

Country

Cyprus

Application Deadline

15 October 2025 - 17:00 (Europe/Athens)

Type of Contract

Temporary

Job Status

Full-time

Hours Per Week

38

Is the job funded through the EU Research Framework Programme?

Horizon Europe - MSCA

Marie Curie Grant Agreement Number

101227217

Is the Job related to staff position within a Research Infrastructure?

No

Offer Description

Applications are invited for **1 PhD position (Doctoral Candidate)** within the EU-funded *Marie Skłodowska-Curie Doctoral Network* project **PRIMER** (Enhancing Climate-Resilient Crops by Innovative Priming Strategies).

Background

PRIMER addresses the increasing threat of elevated temperatures to agriculture and food security by investigating how priming strategies (genetic, chemical, and physiological) can enhance thermotolerance in tomato crop. The network applies cutting-edge technologies including single-cell transcriptomics, computational modelling, advanced genomics, and phenotyping platforms. PRIMER aims to generate actionable knowledge to mitigate climate-related losses in crop yields and empower a new generation of researchers with expertise in plant stress biology.

Network

PRIMER consists of 10 beneficiaries and 15+ partner organisations across Europe and beyond, offering each Doctoral Researcher a rich interdisciplinary and intersectoral training

environment. All researchers will participate in tailored training modules, secondments, workshops, and collaborative projects across the network.

Location

This position (DC12) will be hosted at **Cyprus University of Technology (Cyprus)** in the **Plant Stress Physiology Group** under the supervision of **Prof. Vasileios Fotopoulos**.

Doctoral Researcher Project – DC12

Title: Chemical and nanomaterial seed and plant priming towards physiological adaptation of tomato to heat stress

Project Duration: 36 months

Project Description:

This PhD project aims to develop and validate innovative chemical and nanomaterial priming technologies for the amelioration of heat stress damage in tomato, focusing on providing mechanistic insight in reproductive tissues. The main objectives are: 1) to achieve thermotolerance in tomato by chemical and/or nanomaterial priming treatments at a plant and/or seed level, 2) to map the molecular profile of primed plants and generate networks for predictive priming-induced thermotolerance models, and 3) to generate marker lines to further optimize priming approaches reaching advanced TRL status.

The expected results include the development of effective and innovative chemical and functionalized nanomaterial priming strategies for improved thermotolerance in tomato, the cell/tissue-specific epigenetic, transcriptional and metabolic profiling of organs/developmental stages of plants primed with chemical agents and functionalized nanomaterials in comparison with unprimed plants under control and heat stress conditions, and the development of new tomato marker lines that will then be used in optimizing chemical/nanomaterial priming approaches aiming to reach glasshouse/field level.

Ultimately, this project will provide critical insights into how resilience to heat stress can be improved through chemical and nanomaterial-based priming, supporting PRIMER's overarching goal of developing priming-based strategies for climate-resilient crops.

Requirements

- MSc degree in Plant Biology, Molecular Biology, Biotechnology or related field
- Strong interest in cell biology, molecular biology, plant stress physiology, nanotechnology
- Prior experience with plant stress physiology techniques (e.g. stress marker analysis, antioxidant responses, RT-qPCR, enzymatic activity assays)
- Ability to work in a collaborative and international research environment
- Excellent communication skills in English (written and spoken)

Languages

ENGLISH

Level: C1 Excellent

Additional Information

Benefits

- Competitive salary and allowances in line with MSCA-DN rules
- Interdisciplinary training and career development activities

- Secondment(s) to partner institutions and industry
- Access to state-of-the-art facilities and expert supervision

Eligibility Criteria

- Must not hold a doctoral degree at the date of recruitment
- Must comply with MSCA mobility rule: not have resided or carried out their main activity in Cyprus for more than 12 months in the 36 months prior to recruitment

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Selection Process

- Eligibility check
- Evaluation of CV, academic record, and motivation
- Online interviews with shortlisted candidates
- Final decision and notification expected by October 2025

Inquiries : vassilis.fotopoulos@cut.ac.cy

Where to Apply

E-mail: vassilis.fotopoulos@cut.ac.cy / Subject title: PRIMER application

Application Documents

- CV
- Copies of degree certificates (with official English translation)
- Contact details of two academic referees
- Completed application form (attached with this document or download here: HTTPS://DOCS.GOOGLE.COM/DOCUMENT/D/1GBORSKJ6-FTBTS2KYL1X_LS9PAGZ94KS/EDIT?USP=DRIVE_LINK&OUID=100647924320702531685&RTPOF=TRUE&SD=TRUE)