Título de las prácticas (Title of the internship):

Engineering library of plant hormone biosensors for plant synthetic biology applications

Descripción de las funciones del alumno (Description of the student´s tasks)

The student will perform laboratory experiments with yeast and plants at the CBGP UPM-INIA Severo Ochoa center at PlantDynamicLab under the supervision of Dr. Wabnik. The proposed student practice will allow candidate to combine several scientific disciplines such as bioengineering, live-cell imaging, biotechnology, synthetic biology and lab-on-a-chip microfluidics technologies. Project includes the construction of new generation of biosensor for plant hormones and integration of these biosensor in transgenic plants.

Requisitos (Prerequisites): *(indicar titulación y curso) (give Grade and academic year); otros requisitos adicionales (idiomas, informática, otros conocimientos, etc) (other aditional prerequitistes (languages, informatics, other knowledge, etc)*

Training in Biotechnology or Bioengineering, good command of English, previous lab experience is desirable, familiarity with molecular biology techniques, previous experience with Phyton, R, Image analysis computational modeling tools is a plus

Proyecto formativo (Training Project)

Module EXTERNAL PRACTICES. The fundamental goal of the external practices is to guide the student in applying his previously adquired knowledge to real tasks in a group work environment the realistically represents the work conditions the the students will encounter in their future roles. In this way, the student will be able to get familiar with a working environment (work schedule, responsability, attitude, organization, etc),and with the adequate working methodology in profesional reality, contrasting and applying the acquired academic knowledge.

Actividades a desarrollar en la práctica académica (Activities that will be performed in the academic internship):

A candidate will be working in an international team of researchers and will have a great opportunity to obtain several cross-disciplinary skills:

1) Perform design and cloning of synthetic biology constructs and transformation of yeast and

plant cultures

2) Perform fluorescence measurements using high throughput assays to characterize orthogonal gene circuit designs with new biosensors for phytohormone auxin

3) Implement lab-on-chip technologies to study dynamics of auxin sensing in synthetic genetic circuits

4) Analyze live cell time-lapse imaging data using image processing and computational tools

5) Develop computer models of synthetic gene circuits

Nº de plazas: (Nr. of places)	**1**
¿El alumno tendrá trato habitual **con menores?** **(Has the student dealings with** **underage persons?)**	**No**
Fecha de inicio: (Starting date)	**01/11/2022**
Fecha de fin: (End date)	**30/06/2023**
Horas semanales: (Weekly hours)	**25h**

Horario jornada laboral: **(Working hours)**	**9:30-14:30**
Importe Ayuda/Bolsa de estudio: **(Amount of fellowship /** **remuneration)**	**€/mes**
Tutor académico: (Academic tutor (UPM)) Email:	**Krzysztof Wabnik** **k.wabnik@upm.es**
Departamento tutor académico: **(Dept. of academic tutor)**	**Biotecnología y Biología Vegetal** **CBGP UPM-INIA(CSIC)**
Tutor empresa: **(External tutor)**	
Email tutor empresa: **(Email external tutor)**	
Departamento tutor empresa: **(Dept. of external tutor)**	
Ubicación de la estancia de las **practicas** **(Location of the internship)**	
ENTIDAD COLABORADORA:	

(Collaborating Entity)	
A cumplimentar por Oficina Prácticas ETSIAAB:	
Créditos a reconocer (Nº ECTS):	

Enviar por email a: OFICINA DE PRÁCTICAS ACADEMICAS EXTERNAS – ETSIAAB
secretaria.pei.etsiaab@upm.es – Secretarias: Visitación Pérez / Susana Pardo - Tfno: 913363686)