Título de las prácticas (Title of the internship):

Predicting copy number signatures using DNA methylation status

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

The student's main task will be to test whether copy number signatures (patterns of chromosomal instability derived from whole-genome tumour sequencing) can be predicted from using genome-wide methylation profiling. This will be performed on publicly available data as part of The Cancer Genome Atlas project. This work will include using high-performance computing platforms and resources provided by CNIO.

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)*

Student in the Master of Computational Biology, Orientation, basic knowledge of linux; experience with python or R; basic knowledge of high-performance computing systems (e.g. slurm) and ability to work as part of a team.

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):

The internship will be comprised of the following activities:

- Download and collate tumour methylation data from the TCGA databases
- Integrate methylation data with precomputed copy number signature data
- Partition data into training, validation and test sets
- Identify suitable machine learning approaches for prediction (including deep learning

methods)
- Perform prediction of copy number signatures
- Assess performance using suitable metrics
- Present results and progress during lab meetings
- Liaise with other lab members working on copy number signatures and share insights

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)**	**01/02/2021**
Fecha de fin: **(End date)**	**31/05/2021**
Horas semanales: **(Weekly hours)**	**to be agreed with the student**
Horario jornada laboral: **(Working hours)**	**to be agreed with the student**
Importe Ayuda/Bolsa de estudio:	**0 €/mounth**

(Amount of fellowship / remuneration)	
Tutor académico: (Academic tutor (UPM)) Email:	**Stephan Pollmann** **stephan.pollmann@upm.es**
Departamento tutor académico: **(Dept. of academic tutor)**	**BIOTECNOLOGÍA - BIOLOGÍA VEGETAL (N)**
Tutor empresa: **(External tutor)**	**Geoff Macintyre**
Email tutor empresa: **(Email external tutor)**	**gmacintyre@cnio.es**
Departamento tutor empresa: **(Dept. of external tutor)**	**Computational Oncology**
Ubicación de la estancia de las practicas **(Location of the internship)**	**CNIO, Madrid**
ENTIDAD COLABORADORA: **(Collaborating Entity)**	**Centro Nacional de Investigaciones Oncológicas (CNIO)**
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)