UPO UNIVERSITÁ DEL PIEMONTE ORIENTALE
DIPARTIMENTO DI SCIENZE E INNOVAZIONE TECNOLOGICA

EVENTI DiSIT

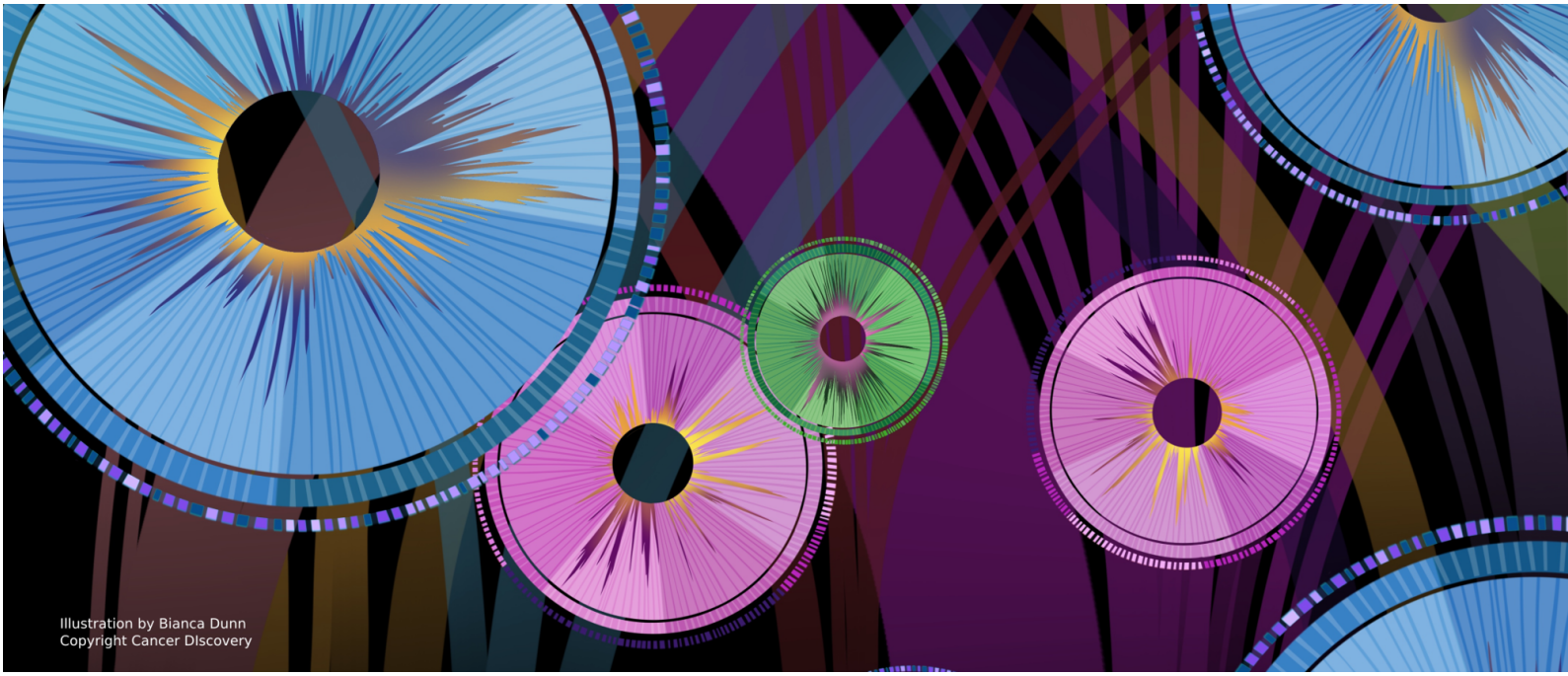
Seminario
Lunedì 03-04-2023
15:00-17:00
Aula 102

Analisi sistematica delle similitudini tra progressione tumorale e sviluppo embrionale e la sua applicazione clinica tramite intelligenza artificiale

Dr. Enrico Moiso

Massachusetts Institute of Technology, Cambridge, MA

Aggiungi gli eventi
al tuo calendario
https://tinyurl.com/yr46hnkp



Cancer is partly a developmental disease, with malignancies named based on cell or tissue of origin. However, a systematic atlas of tumor origins is lacking. Here we map the single-cell organogenesis of 56 developmental trajectories to the transcriptomes of over 10,000 tumors across 33 cancer types. We deconvolute tumor transcriptomes into signals for individual developmental trajectories. Using these signals as inputs, we construct a developmental multilayer perceptron (D-MLP) classifier that outputs cancer origin. D-MLP (ROC-AUC: 0.974 for top prediction) outperforms benchmark classifiers. We analyze tumors from patients with cancer of unknown primary (CUP), selecting the most difficult cases in which extensive multimodal workup yielded no definitive tumor type. Interestingly, CUPs form groups distinguished by developmental trajectories, and classification reveals diagnosis for patient tumors. Our results provide an atlas of tumor developmental origins, provide a tool for diagnostic pathology, and suggest developmental classification may be a useful approach for patient tumors.

EVENTO APERTO A:
Docenti, Borsisti, Assegnisti, Dottorandi, Studenti, Esterni UNIUPO

SEMINARIO IN LINGUA: seminario in inglese, discussione in italiano

Il seminario è promosso dalla Dr.ssa Valentina Audrito (valentina.audrito@uniupo.it).

Aggiungi gli eventi
al tuo calendario
https://tinyurl.com/yr46hnkp