CONCORSO PUBBLICO, PER ESAMI, A N. 1 POSTO DI CATEGORIA D - AREA TECNICA, TECNICO-SCIENTIFICA ED ELABORAZIONE DATI, CON RAPPORTO DI LAVORO SUBORDINATO A TEMPO INDETERMINATO PRESSO L'UNIVERSITÀ DEGLI STUDI DI MILANO - DIPARTIMENTO DI SCIENZE CLINICHE E DI COMUNITÀ NELL'AMBITO DEL PROGETTO DIPARTIMENTI DI ECCELLENZA 2023-2027 - CODICE 22385

La Commissione giudicatrice del concorso, nominata con Determina Direttoriale n. 258 del 11/01/2024, composta da:

Dott.ssa Valentina Bollati	Presidente
Dott.ssa Simona Iodice	Componente
Dott.ssa Chiara Favero	Componente
Sig.ra Giuseppina Nisi	Segretaria

comunica i quesiti relativi alla prova orale:

GRUPPO DI QUESITI N. 1

Spiegare il ruolo dei microRNA nella regolazione genica post-trascrizionale e come vengono utilizzati gli strumenti e le tecniche di bioinformatica per identificare e analizzare i geni bersaglio dei microRNA e prevederne le funzioni biologiche.

PROVA LINGUA INGLESE

Il candidato traduca in italiano il seguente testo, estratto da Monti P, Solazzo G, Bollati V. Effect of environmental exposures on cancer risk: Emerging role of non-coding RNA shuttled by extracellular vesicles. Environ Int. 2023 Nov;181:108255. doi: 10.1016/j.envint.2023.108255. PMID: 37839267:

Cancer is a leading cause of premature death all around the world, accounting for nearly 10 million deceases in 2020. More worryingly, the global cancer burden is predicted to rise by 47% in the next 20 years, with the most prominent increase in countries with transition economies. However, these figures are likely to be greatly underestimated since they are based exclusively on demographic projections (population growth and aging), without considering the impact of concomitant lifestyle changes on cancer risk. In this regard, unhealthy behaviors linked to lifestyle "westernization" (e.g. smoking, physical inactivity, and consumption of highly processed food and sugary beverages) have been postulated to underlie the growing incidence of many early-onset cancer types. Moreover, many environmental factors such as air pollution and ultraviolet light have been recognized as carcinogens, further stressing the contribution of the exposome (i.e. the sum of all lifelong exposures) on cancer incidence and mortality. Accordingly, a recent study has shown that only a minority of cancer cases (10–30%) could be attributed to "bad luck", i.e. intrinsic causes such as random mistakes occurring during DNA replication.

GRUPPO DI QUESITI N. 2

Quali sono i principali approcci e strumenti utilizzati nell'analisi bioinformatica del metaboloma, e come possono essere applicati per identificare biomarcatori metabolici e comprendere le vie metaboliche coinvolte in una specifica condizione biologica o malattia?

PROVA LINGUA INGLESE

Il candidato traduca in italiano il seguente testo, estratto da Monti P, Solazzo G, Bollati V. Effect of environmental exposures on cancer risk: Emerging role of non-coding RNA shuttled by extracellular vesicles. Environ Int. 2023 Nov;181:108255. doi: 10.1016/j.envint.2023.108255. PMID: 37839267:

Despite the enormous relevance to public health, much remains to be clarified about the biological mechanisms linking environmental exposures to cancer risk. What has become clear is that malignant cells do need the support of neighboring non-tumor cells for their survival and growth, and this requires intricate crosstalk between cancer and the tumor microenvironment. In this framework, extracellular vesicles (EVs) have recently emerged as pivotal players in exchanging information between cells, by transporting a wide variety of proteins, lipids, and nucleic acids. Delivery of such a molecular payload elicits biological effects in recipient cells; in particular, many studies have pointed out that EV-borne non-coding RNAs (EV ncRNAs) could exert an important modulatory function on cellular proliferation, differentiation, and motility. Besides, exposure to many environmental and lifestyle determinants has been demonstrated to alter the profile of EV ncRNAs, with potential pathological implications.

Milano, 1 febbraio 2024

La Commissione

Dott.ssa Valentina Bollati Presidente

Dott.ssa Simona Iodice Componente

Dott.ssa Chiara Favero Componente

Sig.ra Giuseppina Nisi Segretaria