



SELEZIONE N. 2023T11, PER ESAMI, AL FINE DI REPERIRE N. 1 TECNOLOGO DI RICERCA, DI SECONDO LIVELLO (CATEGORIA STIPENDIALE PARI A "D3"), DA ASSUMERE MEDIANTE CONTRATTO DI LAVORO A TERMINE, A TEMPO PIENO, PER N. 60 MESI, AI SENSI DELL'ART. 24-BIS DELLA LEGGE 30.12.2010, N. 240, E DEL C.C.N.L. DEL 19.04.2018, IN QUANTO COMPATIBILE, PRESSO IL DIPARTIMENTO DI BIOMEDICINA COMPARATA - BCA.

QUESITI COLLOQUIO

Elenco n. 1:

1. Descrivi i principali fattori ecologici che concorrono all'assemblaggio ed evoluzione dei microbiomi animali, con riferimento all'ambiente marino
2. Descrivi quali software utilizzeresti per effettuare genomica comparativa tra specie microbiche e animali
3. *Conoscenza lingua inglese:*
The Earth may contain around 10^{30} microbial cells distributed across 10^{12} species of microbes (Bacteria and Archaea), albeit many of these species likely share functional metabolic redundancy. Several efforts have sought to describe these communities as they relate to their environmental biomes, however few studies have focused on non-human vertebrates. The host-associated gut microbiota in vertebrates is shaped by a variety of biological factors including host phylogeny, diet, and age, along with environmental or ecological factors such as geography, habitat, and climate, whereas less is known about other body sites. (Reference: Minich, J.J., Härer, A., Vechinski, J. et al. Host biology, ecology and the environment influence microbial biomass and diversity in 101 marine fish species. Nat Commun 13, 6978 (2022). <https://doi.org/10.1038/s41467-022-34557-2>)

Elenco n. 2:

1. Quali sono gli effetti delle catene trofiche sul microbioma ambientale, con qualche riferimento all'ambiente marino
2. Illustra le principali metriche di diversità ecologica
3. *Conoscenza lingua inglese:*
Fishes include several broad classes collectively representing the largest diversity of vertebrates (>35,000 species): Agnatha (jawless), Chondrichthyes (cartilaginous), Sarcopterygii (lobe-finned), and Osteichthyes (bony). Fish differ from mammals in that they generally breathe and excrete nitrogenous waste from the gills. Other body sites, including the skin, have evolved unique immune functions such as enhanced mucosal production for pathogen defense. (Reference: Minich, J.J., Härer, A., Vechinski, J. et al. Host biology, ecology and the environment influence microbial biomass and diversity in 101 marine fish species. Nat Commun 13, 6978 (2022). <https://doi.org/10.1038/s41467-022-34557-2>)

Elenco n. 3:

1. Descrivi le principali differenze tra le varie strategie di sequenziamento NGS
2. Come utilizzare informazione genomica e trascrittomica per l'assemblaggio di genomi procarioti
3. *Conoscenza lingua inglese:*
In this study, we show that anatomy (body sites) is the primary driver of host-associated microbiota with the midgut having the highest overall diversity. Microbial biomass in the gill is negatively associated with larger pelagic fishes (caught offshore) suggesting a potential physiological adaptation or trait in the host to be further explored. We describe patterns of phyllosymbiosis occurring in multiple body sites including the hindgut, gill, and skin microbiota communities of fishes. (Reference: Minich, J.J., Härer, A., Vechinski, J. et

al. Host biology, ecology and the environment influence microbial biomass and diversity in 101 marine fish species. *Nat Commun* 13, 6978 (2022). <https://doi.org/10.1038/s41467-022-34557-2>