

Domande Orale N1

1. Descrivere la metodica della qReal-Time PCR
2. Descrivere l'allestimento di elettroforesi per acidi nucleici
3. Utilizzo del programma Excel
4. Autonomia universitaria: principi costituzionali
5. RNA G-quadruplex (rG4) secondary structures are proposed to play key roles in fundamental biological processes that include the modulation of transcriptional, co-transcriptional, and posttranscriptional events. Recent methodological developments that include predictive algorithms and structure-based sequencing have enabled the detection and mapping of rG4 structures on a transcriptome-wide scale at high sensitivity and resolution. The data generated by these studies provide valuable insights into the potentially diverse roles of rG4s in biology and open up a number of mechanistic hypotheses.

F. to La Commissione

Domande Orale N2

1. Descrivere l'allestimento di elettroforesi per proteine
2. Tecniche di clonaggio della Biologia Molecolare
3. Utilizzo del programma Word
4. Fonti normative dell'Università
5. Climatic conditions changing over time and space shape the evolution of organisms at multiple levels, including temperate lizards in the family Lacertidae. Here we reconstruct dated phylogenetic tree of 262 lacertid species based on a supermatrix relying on novel phylogenomic datasets and fossil calibrations. Temperate species also underwent a genome wide slowdown in molecular substitution rates compared to tropical and desert-adapted lacertids.

F. to La Commissione

Domande Orale N3

1. Allestimento di colture cellulari: illustrare un modello a scelta batterico, di lievito, di cellule superiori
2. Procedura del Western blotting
3. Utilizzo del programma Power Point
4. Organi previsti dalla Legge 240 del 30 dicembre 2010 (cd Legge Gelmini)
5. Most Mendelian disorders, including neuromuscular disorders, display extensive clinical heterogeneity that cannot be solely explained by primary genetic mutations. This phenotypic variability is largely attributed to the presence of disease modifiers, which can exacerbate or lessen the severity and progression of the disease. LAMA2-deficient congenital muscular dystrophy (LAMA2-CMD) is a fatal degenerative muscle disease resulting from mutations in the LAMA2 gene encoding Laminin-a2.

F. to La Commissione

Domande Orale N4

1. Procedura del Northern blotting
2. Procedure di trasformazione batterica e selezione delle colonie positive
3. Elenco delle componenti indispensabile per il funzionamento di un PC
4. Compiti e funzioni del Rettore
5. Splice-site defects account for about 10% of pathogenic mutations that cause Mendelian diseases. Prevalence is higher in neuromuscular disorders (NMDs), since the unusually large size and multi-exonic nature of genes encoding muscle structural proteins. Therapeutic genome editing to correct disease-causing splice-site mutations has been accomplished only through the homology-directed repair pathway, which is extremely inefficient in postmitotic tissues such as skeletal muscle.

F. to La Commissione

Domande Orale N5

1. Impiego della tecnica di centrifugazione
2. Descrivere un approccio sperimentale allo studio dell'espressione di un gene
3. Tipi di connessione
4. Compiti e funzioni del Consiglio di amministrazione
5. Stem-cell ageing is a nodal cause of the decline in regenerative capacity of most tissues over time and a striking example is provided by skeletal muscle. Its stem cells (also known as satellite cells) are quiescent for most of their life. In response to injury, these quiescent cells activate, expand and acquire distinct fates, with some differentiating and forming new myofibres and others self-renewing to replenish the homeostatic quiescent stem-cell pool.

F. to La Commissione

Domande Orale N6

1. Manipolazione di sostanze tossiche: descrizione dei principali dispositivi di protezione individuali e di laboratorio
2. Allestimento di una reazione di PCR, illustrare il razionale dell'uso degli specifici reagenti
3. Dispositivi di OUTPUT
4. Compiti e funzioni del Senato Accademico
5. Alzheimer's disease, one of the neurodegenerative diseases, is induced by accumulation of amyloid β -peptides in neuronal cells. In early stage, patients of Alzheimer's disease have memory impairment. Besides, the accumulation of amyloid β -peptides in neuronal cells is known as generating elevation of reactive oxygenspecies (ROS). Consequently, oxidative stress leads to cell death in neuronal cells. Therefore, the regulation of ROS generation is very important to prevent or treat Alzheimer's disease

F. to La Commissione

Domande Orale N7

1. Procedura della Chromatin immunoprecipitation
2. Illustrare le differenze tra le metodiche di PCR e qRT-PCR
3. Dispositivi di INPUT
4. Compiti e funzioni del Collegio dei revisori dei conti
5. The clinical picture of patients with COVID-19 has a pattern of respiratory dominance and depends on the tropism of the virus towards the target organs of the body, because SARSCoV-2 uses the ACE-2 receptor for its entry into the host cell . The virus binds ACE-2 (Angiotensin-converting enzyme 2) with an affinity 10-20 times greater than SARS-CoV-1. This receptor is highly expressed in multiple body tissues, including lung, gastrointestinal, kidney and cardiac tissue, explaining the symptoms present in the prodrome of the disease

F. to La Commissione

Domande Orale N8

1. Descrivere con dettagli una tecnica per lo studio dell'interazione tra DNA e proteine
2. Illustrare una procedura di purificazione del DNA da un organismo modello a scelta
3. Aspetti hardware delle reti
4. Compiti e funzioni del Nucleo di valutazione di Ateneo
5. For reasons that remain unknown, the *Plasmodium falciparum* genome has an exceptionally high ATcontent compared to other *Plasmodium* species and eukaryotes, being in general nearly 80% in coding regions and approaching 90% in non-coding regions. Here, we examine how this phenomenon relates to genome-wide patterns of de novo mutation. Mutation accumulation experiments were performed by sequential cloning of six *P. falciparum* isolates growing in human erythrocytes in vitro for 4 years, with 279 clones sampled for whole genome sequencing at different time points.

F. to La Commissione

Domande Orale N9

1. Descrivere una tecnica per la determinazione dell'espressione di un gene
2. In quali studi molecolari si usa la CHIP
3. Periferiche esterne
4. Compiti e funzioni del Direttore Generale
5. Multiple sclerosis (MS) is an autoimmune disease that alters the central nervous system, causing the appearance of focal areas of inflammation and demyelination. According to the Atlas of MS, in the world, there are about 2.3 million people affected by MS. The etiopathogenesis of MS in spite of the several attempts to predict the risk of acquiring the illness did not yet lead to a paradigm that encompassed all the observations. MS geoepidemiology follows a latitudinal gradient. Therefore, a study was carried out to identify the etiological gap involving population from 71 countries with homogenous geographical characteristics

F. to La Commissione

Domande Orale N10

1. In quali studi molecolari si usa la qReal-Time PCR
2. Descrivere gli enzimi utilizzati nella tecnologia del DNA ricombinante
3. Tipologie di memoria
4. L'Agenzia nazionale di valutazione del sistema universitario e della ricerca (ANVUR)
5. Glutamate and gamma-aminobutyric acid (GABA) are the major neurotransmitters in the brain. Inhibitory GABA and excitatory glutamate work together to control many processes, including the brain's overall level of excitation. A balanced interaction is required to maintain the physiological homeostasis, while prolonged imbalance can lead to disease. Glutamatergic/GABAergic imbalance can be found in autism spectrum disorders and anxiety disorders with elevated glutamatergic neurotransmission, while high levels of GABA produce more relaxation and even sedation. Neurotransmitter levels can be affected by external factors, for example, alcohol.

F. to La Commissione

Domande Orale N11

1. Illustrare differenti approcci per lo studio dell'espressione genica
2. Descrivere tipologie di terreni selettivi di coltura di un modello cellulare a scelta: cellule batteriche, lievito, mammifero o altro
3. Internet e intranet e loro utilizzo nella pubblica amministrazione
4. Il rapporto di lavoro alle dipendenze delle amministrazioni pubbliche
5. Spermine is a natural polyamine, and the end-product in the polyamine biosynthetic pathway. In the brain, spermine binds to N-methyl-D-aspartate receptors, and is involved in the modulation of learning and memory. In addition, excess accumulation of spermine induces neuroexcitatory responses and, thus, neurotoxicity. Therefore, it is considered that some mechanisms for control of the cerebral spermine concentration are present in the brain to maintain homeostasis of cerebral function via spermine-related neuro-responses. Neural spermine transport system(s) could be important for the removal of spermine from the brain, and the modulation of cerebral spermine concentration

F. to La Commissione

Domande Orale N12

1. Illustrare l'utilizzo dell'elettroforesi in Biologia Molecolare
2. Utilizzo degli anticorpi nelle tecniche di Biologia Molecolare
3. Tipologie di computer
4. La disciplina del reclutamento dei professori universitari
5. RNA secondary structures can modulate post-transcriptional regulation of gene expression. This can be achieved through controlling mRNA splicing, export, stability, localization and translation by either recruiting protein factors or by impeding scanning processes. A scanning process is key to eukaryotic cap-dependent translation initiation and involves the 43S preinitiation complex (PIC) scanning the 5'-UTR in the 3'-direction up to an initiation codon, where a complete 80S ribosome is formed and translation is initiated. To reach an initiation codon, helicases must either unwind secondary structures or remodel the PIC to help overcome impediments

F. to La Commissione