



UNIVERSITA' DEGLI STUDI DELL'AQUILA

AMMINISTRAZIONE CENTRALE
AREA GESTIONE DELLE RISORSE UMANE
SETTORE CONCORSI E SELEZIONI

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TRACCE DELLA PROVA ORALE

SET n. 1

- Tecniche di spettrofotometria UV-VIS: strumenti, teoria e applicazioni.
- Tecniche per la purificazione delle proteine: strumenti, teoria e applicazioni.

TESTO IN INGLESE DA TRADURRE

RNA sequencing (RNA-seq) has become the preferred method for global quantification of bacterial gene expression. With the continued improvements in sequencing technology and data analysis tools, the most labor-intensive and expensive part of an RNA-seq experiment is the preparation of sequencing libraries, which is also essential for the quality of the data obtained. Here, we present a straightforward and inexpensive basic protocol for preparation of strand-specific RNA-seq libraries from bacterial RNA as well as a computational pipeline for the data analysis of sequencing reads. The protocol is based on the Illumina platform and allows easy multiplexing of samples and the removal of sequencing reads that are PCR duplicates.

Poulsen and Vinter. RNA-Seq for Bacterial Gene Expression. Curr Protoc Nucleic Acid Chem. 2018 Jun;73(1):e55. doi: 10.1002/cpnc.55.

DOMANDA DI INFORMATICA

Definire uno strumento utilizzabile per la creazione di un database.

SET n. 2

- Amplificazione degli acidi nucleici: strumenti, teoria e applicazioni
- Microscopia a fluorescenza: strumenti, teoria e applicazioni

TESTO IN INGLESE DA TRADURRE

This overview discusses a broad array of aspects involved in protein purification, including historical background, determining the purpose for purifying a particular protein, and methods and recommendations for specific

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purification procedures. Strategies are discussed based on the classification of the protein according to shape, oligomeric structure, function, as well as location and associations within the cell. Specifically, critical issues are detailed for extracellular, cytoplasmic, and membrane-associated proteins, as well as for insoluble proteins. Strategies for purification of both soluble and insoluble (inclusion bodies) recombinantly expressed proteins are also provided. Protein purification flow charts are presented to give a broad outline of the methods used for different types of proteins. Also covered are methods of analysis and detection, and techniques for characterizing a purified protein. Scopes RK and Smith JA. Analysis of proteins. Curr. Protoc. mol. biol. Nov 2006. <https://doi.org/10.1002/0471142727.mb1000s76>.

DOMANDA DI INFORMATICA

Definire uno strumento utilizzabile per un'analisi statistica convenzionale.

SET n. 3

- Tecniche di sterilizzazione: strumenti, teoria e applicazioni
- Tecniche di elettroforesi delle proteine: strumenti, teoria e applicazioni

TESTO IN INGLESE DA TRADURRE

Accessory cells such as macrophages and other antigen-presenting cells (APC) in suspensions of mouse spleen and lymph node are removed by means of their preferential adherence to Sephadex G-10 polymers. Unlike the use of nylon wool columns to remove B and accessory cells (UNIT Unavailable), Sephadex G-10 columns are employed when the main purpose is to yield functional populations of T cells and B cells (by depleting mostly macrophages and other APC). The following technique is simple, fast, and reproducible; however, it results in some retention of B cells on the resin. The basic protocol in this unit involves assembling the column, loading and equilibrating the sterile Sephadex slurry, and passing the cells through the column followed by collection and analysis of eluate. Two support protocols describe preparation of the Sephadex G-10 slurry for use in the column by fining and sterilization, plus recycling resin from used columns.

Hathcock KS. Depletion of Accessory Cells by Adherence to Sephadex G-10. Curr. Protoc. Immunol. May 2001. <https://doi.org/10.1002/0471142735.im0306s08>

DOMANDA DI INFORMATICA

Definire uno strumento di ausilio per la preparazione di diapositive.

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