

ORALE BUSTA 1

- 1) Il/la candidato/a descriva l'organizzazione di un laboratorio di malattie infettive e nello specifico i sistemi di protezione individuale e i sistemi di protezione collettiva per la riduzione del rischio chimico- biologico nel laboratorio di malattie infettive evidenziandone le analogie e le differenze.
- 2) Il/la candidato/a descriva le procedure per spedizione di materiale biologico infettivo
- 3) Il candidato illustri la composizione e le competenze del Consiglio di amministrazione

Lettura e traduzione di un testo in inglese

Inflammation is a crucial component of the immune response essential for host defense and tissue repair. However, when the immune response becomes dysregulated, it can contribute to the pathogenesis of chronic diseases. While acute inflammation is a short-lived, protective response, chronic inflammation is sustained over time and can lead to immune dysfunction, tissue damage, and disease progression.

From HIV, Inflammation, and Immunometabolism: A Model of the Inflammatory Theory of Disease. Teer et al. 2025, Viruses

F.to La Commissione

ORALE BUSTA 2

- 1) Il/la candidato/a descriva le procedure di conservazione e tracciamento dei campioni in azoto liquido
- 2) Il/la candidato/a descriva quali saggi di laboratorio utilizzare per valutare le modificazioni ormonali e metaboliche nei pazienti in terapia anti-retrovirale
- 3) Il candidato illustri la composizione e le competenze del Senato accademico

Lettura e traduzione di un testo in inglese

The chronic inflammation theory of disease suggests that persistent immune activation/inflammation underlies both infectious and non-infectious conditions and serves as a unifying mechanism across distinct pathological states. In this review article, we argue that human immunodeficiency virus (HIV) infection represents a prime model for studying chronic inflammation, and that despite effective viral suppression with antiretroviral therapy (ART), people living with HIV (PLWH) exhibit persistent immune activation, systemic inflammation, and an increased risk of cardiovascular, metabolic, and neurodegenerative diseases.

From HIV, Inflammation, and Immunometabolism: A Model of the Inflammatory Theory of Disease. Teer et al. 2025, Viruses

F.to La Commissione

ORALE BUSTA 3

- 1) Il/la candidato/a descriva come allestire un laboratorio per colture cellulari e come utilizzarle per la valutazione di risposte immunologiche e molecolari.
- 2) Il/la candidato/a descriva quali procedure e precauzioni adotterebbe per espandere un virus SARS-CoV2 in laboratorio.
- 3) Il candidato illustri le competenze del Direttore di Dipartimento

Lettura e traduzione di un testo in inglese

Here, the interplay between microbial translocation, immune dysregulation, and metabolic reprogramming fuels a state of chronic inflammation that accelerates disease progression beyond HIV itself. Key factors such as T-cell exhaustion, persistent monocyte/macrophage activation, and immunometabolic dysfunction contribute to such a sustained inflammatory state. This review explores the molecular and cellular mechanisms driving chronic inflammation in HIV infection with a focus on immunometabolism and its implications for broader inflammatory diseases.

From HIV, Inflammation, and Immunometabolism: A Model of the Inflammatory Theory of Disease. Teer et al. 2025, Viruses

F.to La Commissione

ORALE BUSTA 4

- 1) Il/la candidato/a descriva i principi di funzionamento del nefelometro e sue applicazioni
- 2) Il/la candidato/a descriva i metodi per la separazione di specifiche popolazioni cellulari.
- 3) Il candidato illustri cosa si intende con la sigla VQR

Lettura e traduzione di un testo in inglese

Inflammation is a fundamental immune response that acts as a double-edged sword, i.e., it is essential for host defenses, tissue repair, and immune surveillance, though potentially harmful if dysregulated. The distinction between acute and chronic inflammation lies in their duration, immune cell involvement, and ultimate consequences. Here, acute inflammation is a relatively short-lived, rapid response to infections, injuries, or toxins, aimed at eliminating pathogens, clearing damaged cells, and initiating tissue repair.

From HIV, Inflammation, and Immunometabolism: A Model of the Inflammatory Theory of Disease. Teer et al. 2025, Viruses

F.to La Commissione

ORALE BUSTA 5

- 1) Il/la candidato/a descriva le misure di contenimento in caso di dispersione di materiale infettivo
- 2) Il/la candidato/a descriva i principi di funzionamento di cell sorter
- 3) Il candidato illustri cosa è l' ANVUR e di cosa si occupa

Lettura e traduzione di un testo in inglese

Moreover, chronic inflammation—unlike its acute counterpart—can lead to tissue damage, fibrosis, and disease progression. Inflammation is traditionally recognized as a hallmark of infectious diseases. However, advances in molecular and epidemiological research suggest that chronic, low-grade inflammation is a central factor in a broad range of non-infectious ailments such as cardiovascular diseases (CVDs), cancer, diabetes, and neurodegenerative disorders, thus potentially serving as a unifying mechanism across apparently distinct pathological conditions. From HIV, Inflammation, and Immunometabolism: A Model of the Inflammatory Theory of Disease. Teer et al. 2025, Viruses

F.to La Commissione

ORALE BUSTA 6

- 1) Il/la candidato/a descriva le procedure preliminari per acquisizione di campioni al citofluorimetro multiparametrico
- 2) Il/la candidato/a descriva le procedure per ottenere l'autorizzazione a lavorare su modelli murini sperimentali
- 3) Il candidato illustri cosa si intende per terza missione

Lettura e traduzione di un testo in inglese

One of the most well-studied examples of chronic inflammation as a disease driver is human immunodeficiency virus (HIV) infection, where persistent immune activation and systemic inflammation contribute to disease progression and non-AIDS (acquired immunodeficiency syndrome)-related comorbidities. Here, individuals with HIV often exhibit elevated levels of inflammatory markers, immune dysfunction, increased CVD risk, neurocognitive impairment, and metabolic disorders despite effective antiretroviral therapy (ART) suppressing viral replication. From HIV, Inflammation, and Immunometabolism: A Model of the Inflammatory Theory of Disease. Teer et al. 2025, Viruses

F.to La Commissione

ORALE BUSTA 7

- 1) Il/la candidato/a descriva, nella pianificazione di un esperimento su animali, l'applicazione del principio delle 3R.
- 2) Il/la candidato/a descriva il principio fisico alla base dei parametri fisici del citofluorimetro a flusso
- 3) Il candidato illustri il processo e le finalità della raccolta delle opinioni degli studenti sugli insegnamenti

Lettura e traduzione di un testo in inglese

The pathophysiology of chronic inflammation is complex, involving intricate interactions between the host immune system and various inflammatory triggers [1]. A crucial aspect of this process is the interplay between the innate immune system's early response and the subsequent activation of adaptive immunity [5]. Understanding these mechanisms is therefore essential for developing therapeutic strategies to mitigate the detrimental effects of chronic inflammation and thereby lower the burden of inflammatory-driven diseases.

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ORALE BUSTA 8

- 1) Il/la candidato/a descriva le procedure per il mantenimento e propagazione di una linea di culture cellulare
- 2) Il/la candidato/a descriva le notifiche OGM per la ricerca
- 3) Il candidato illustri le differenze di ruolo tra Rettore e Direttore generale

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These differences highlight the crucial role of the early innate immune response in determining the severity of disease onset and progression. For example, non-pathogenic hosts establish a relatively early anti-inflammatory milieu that is characterized by increased IL (interleukin)-10 production, decreased T-cell activation, and resistance to microbial translocation. In contrast, persistent immune activation, increased apoptosis, and microbial translocation can fuel a cycle of chronic inflammation in pathogenic hosts, contributing to systemic immune dysfunction and end-organ disease.

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