

## TRACCE DELLA PROVA ORALE

Concorso pubblico per titoli ed esami, indetto con D.D.G. n. 351 – 2022 del 9.05.2022, pubblicato sulla Gazzetta Ufficiale n. 45 del 7.06.2022, per n. 1 posto di Categoria D, posizione economica D1, Area tecnica, tecnico-scientifica ed elaborazione dati, con rapporto di lavoro subordinato a tempo pieno e indeterminato da assegnare al Dipartimento di Medicina clinica, sanità pubblica, scienze della vita e dell'ambiente dell'Università degli Studi dell'Aquila.

### **BUSTA N. 1**

1. Rischio Legionellosi nei reparti ospedalieri
2. Leggere e tradurre il brano in allegato
3. Con i dati a disposizione, il candidato utilizzando Excel li inserisca in un foglio di lavoro, calcoli media, mediana e range, e costruisca un grafico:

Anno	PM10 $\mu\text{g}/\text{mc}$
2010	50.5
2011	49.9
2012	48.1
2013	47.6
2014	46.6
2015	46.5

### **COVID-19: Discovery, diagnostics and drug development**

Coronavirus disease 2019 (COVID-19) started as an epidemic in Wuhan in 2019, and has since become a pandemic. Groups from China identified and sequenced the virus responsible for COVID-19, named severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), and determined that it was a novel coronavirus sharing high sequence identity with bat- and pangolin-derived SARS-like coronaviruses, suggesting a zoonotic origin. SARS-CoV-2 is a member of the Coronaviridae family of enveloped, positive-sense, single-stranded RNA viruses that infect a broad range of vertebrates. The rapid release of the sequence of the virus has enabled the development of diagnostic tools. Additionally, serological tests can now identify individuals who have been infected. SARS-CoV-2 infection is associated with a fatality rate of around 1-3%, which is commonly linked to the development of acute respiratory distress syndrome (ARDS), likely resulting from uncontrolled immune activation, the so called "cytokine storm". Risk factors for mortality include advanced age, obesity, diabetes, and hypertension. Drug repurposing has been used to rapidly identify potential treatments for COVID-19, which could move quickly to phase III. Better knowledge of the virus and its enzymes will aid the development of more potent and specific direct-acting antivirals. In the long term, a vaccine to prevent infection is crucial; however, even if successful, it might not be available before 2021-22. To date, except for intravenous remdesivir and dexamethasone, which have modest effects in moderate to severe COVID-19, no strong clinical evidence supports the efficacy of any other drugs against SARS-CoV-2. The aim of this review is to provide insights on the discovery of SARS-CoV-2, its virology, diagnostic tools, and the ongoing drug discovery effort.

## **BUSTA N. 2**

1. Rischio Legionellosi nelle strutture ricettive e centri termali
2. Leggere e tradurre il brano in allegato
3. Con i dati a disposizione, il candidato utilizzando Excel li inserisca in un foglio di lavoro, calcoli media, mediana e range, e costruisca un grafico:

Anno	CO2
2010	523
2011	811
2012	640
2013	395
2014	803
2015	994

### **Listeria monocytogenes, a food-borne pathogen**

The gram-positive bacterium *Listeria monocytogenes* is an ubiquitous, intracellular pathogen which has been implicated within the past decade as the causative organism in several outbreaks of foodborne disease. Listeriosis, with a mortality rate of about 24%, is found mainly among pregnant women, their fetuses, and immunocompromised persons, with symptoms of abortion, neonatal death, septicemia, and meningitis. Epidemiological investigations can make use of strain-typing procedures such as DNA restriction enzyme analysis or electrophoretic enzyme typing. The organism has a multifactorial virulence system, with the thiol-activated hemolysin, listeriolysin O, being identified as playing a crucial role in the organism's ability to multiply within host phagocytic cells and to spread from cell to cell. The organism occurs widely in food, with the highest incidences being found in meat, poultry, and seafood products. Improved methods for detecting and enumerating the organism in foodstuffs are now available, including those based on the use of monoclonal antibodies, DNA probes, or the polymerase chain reaction. As knowledge of the molecular and applied biology of *L. monocytogenes* increases, progress can be made in the prevention and control of human infection.