



Scientific team

# Dr.Ashraf's quiz

## (Virology)

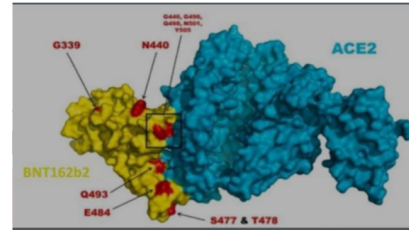
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1) This figure represents the spike protein-ACE2 receptor complex of SARS-CoV-2, and BNT16262 represents the Pfizer's vaccine. If a 33-year-old female patient took both shots of the vaccine, mutation at which of the following residues would directly weaken the neutralizing immunity generated as a result of vaccination?

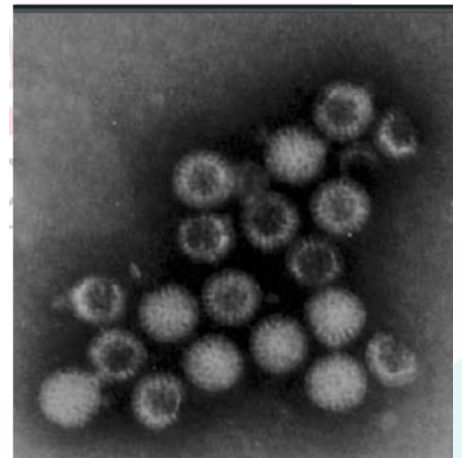
- A) S477
- B) G339
- C) N440
- D) Q493
- E) T478



Answer: D

2) A 2-year-old boy developed diarrhea, vomiting, and fever. Over the following 12 h, the vomiting episodes decreased while the diarrhea became worse (reaching 8 to 10 times). He was then taken to the hospital; the child was in good general condition despite mild dehydration. Stool sample was taken for analysis and the electron microscopy report showed the following picture. What is the most likely causative agent for this child's symptoms?

- A) Adenovirus
- B) Rotavirus
- C) Coxsackievirus
- D) Entamoeba histolytica
- E) Escherichia coli



Answer: B

A 3-year-old child was brought to the ER. His mother noticed that he became tired, feverish and started to have an itchy rash on his chest and face that spread later to the extremities (shown in the picture). The child was prescribed an antipyretic and calamine lotion to relieve the itch. Which of the following is correct about the causative agent?

- A) It is the largest DNA virus
- B) ds DNA virus with possible reactivation
- C) ssRNA virus with reverse transcriptase
- D) Has a long incubation period (10 days-year)
- E) Transmitted through the fecal-oral route



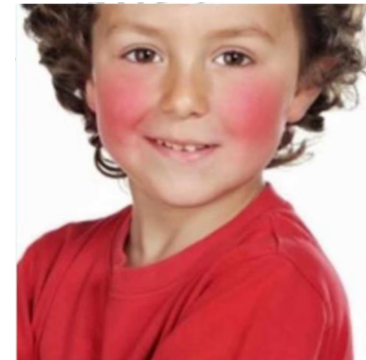
Answer: B



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A 5-year-old child was brought by his parents to the ER after the appearance of bright red macular exanthem on the cheeks as seen in the picture, in addition to fever, headache, and rhinorrhea one week before the appearance of the rash. Which of the following best describes the virus which is likely to cause this Condition?

- A) It is considered to have the smallest genome size
- B) It is a positive sense single-stranded RNA virus
- C) It is totally dependent on host cell for replication
- D) It is an enveloped DNA virus
- E) It has a helical capsid



Answer: B

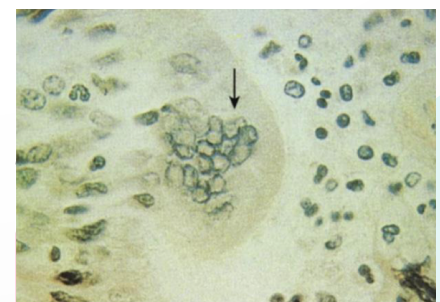
Which of the following is CORRECT about the adsorption step in viral replication

- A) In naked viruses, adsorption does not necessarily occur to facilitate the virus O penetration
- B) A single spike-receptor complex is sufficient for virus entry into host cell in most viruses
- C) Influenza virus has two glycoproteins, NA has superior role in viral entry than HA
- D) Penton projections are used by the adenovirus for adsorption to epithelial cell receptors
- E) Retroviral entry into target cells require gp160- CD4 receptor interaction only

Answer: D

The picture represents a histologic section of lung tissue taken from an immunocompromised child with a virus-induced giant cell pneumonia. Which one of the following viruses is likely to cause the pathology seen in the picture?

- A) Rotavirus
- B) Rhinovirus
- C) Polyoma BK virus
- D) Measles virus
- E) HBV



Answer: D

A bird scientist was on a three-month research trip to a rainforest in South America. On the tenth day of her trip, she was bitten on the hand by an unusually aggressive bat. She applied a topical antibiotic ointment and continued her trip. Four weeks later, the scientist lost feeling in her hand and shortly began experiencing high fever, periods of rigidity, difficulty in swallowing liquids, drooling, and disorientation. Death followed rapidly. A postmortem biopsy of her brain showed the presence of Negri bodies. These symptoms are consistent with the woman having died of:

- A) MERS CoV
- B) Polyoma BK virus
- C) Ebola virus.
- D) Rabies virus.

Answer: D