



Covid-19: First coronavirus was described in *The BMJ* in 1965

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The first description of human coronavirus—a family of viruses that now includes SARS-CoV-2, the cause of the current covid-19 pandemic—was published in *The BMJ* in 1965.

The research, led by virologist David Tyrrell at the Common Cold Unit in Wiltshire, England, involved studying nasal washings from volunteers.¹ The researchers found that they could grow several viruses associated with the common cold, but not all of them. One such sample, referred to as B814, turned out to be what we now know as a coronavirus.

Using the original B814 nasal swab from a “boy with a typical common cold in 1960,” the team obtained more secretions from volunteers who “developed colds after intranasal inoculation of the original specimen.”

The researchers wrote, “In over 20 experiments washings were tested by inoculation into a variety of test systems for known viruses. These should have revealed the presence of influenza A, B, or C, pars-influenza 1, 2, 3, or 4, respiratory syncytial viruses, herpes simplex virus, and adenoviruses, cytopathic enteroviruses and rhinoviruses, or mycoplasma, Mycoplasma pneumoniae. None was found.”

They then carried out experiments to confirm that they were dealing with a virus. “These experiments indicate that the infectivity of B814 can pass a bacteria-tight filter, is inactivated by ether, and can induce colds in volunteers given sufficient antibiotics to cure a fully developed infection with the Eaton agent (*M pneumoniae*). These results showed that B814 is a virus, not a mycoplasma, and that it is not an adenovirus, enterovirus, or rhinovirus because it is ether-labile.”

The paper concluded, “After considerable initial doubts we now believe that the B814 strain is a virus virtually unrelated to any

other known virus of the human respiratory tract, although, since it is ether-labile, it may be a myxovirus.”

The virus was then imaged for the first time by June Almeida (née Hart), a virologist known for pioneering new methods for viral imaging and diagnosis.^{2,3} Almeida and Tyrrell were among a group of eight virologists to write to *Nature* in 1968, outlining their findings and naming the virus family coronavirus.⁴

“In the opinion of the eight virologists these viruses are members of a previously unrecognized group which they suggest should be called the coronaviruses, to recall the characteristic appearance by which these viruses are identified in the electron microscope,” the journal notice said.

They described the virus particles as “more or less rounded in profile” with a characteristic “fringe of projections . . . which are rounded or petal shaped, rather than sharp or pointed, as in the myxoviruses. This appearance, recalling the solar corona, is shared by mouse hepatitis virus and several viruses recently recovered from man, namely strain B814, 229E and several others.”

Correction: The headline of this article was updated on 17 April to clarify that it was the first coronavirus to be described.

- 1 Tyrrell DAJ, Bynoe ML. Cultivation of a novel type of common-cold virus in organ cultures. *Br Med J* 1965;1:1467-70. 10.1136/bmj.1.5448.1467 14288084
- 2 Almeida JD, Tyrrell DAJ. The morphology of three previously uncharacterized human respiratory viruses that grow in organ culture. *J Gen Virol* 1967;1:175-8. 10.1099/0022-1317-1-2-175 4293939
- 3 Almeida J, June Almeida (née Hart). *BMJ* 2008;336:1511. 10.1136/bmj.a434.
- 4 Coronaviruses. *Nature* 1968;220:16. <https://www.nature.com/articles/220650b0.pdf>.

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