

Reidentification of Ebola Virus E718 and ME as Ebola Virus/H.sapiens-tc/COD/1976/Yambuku-Ecran

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Ebola virus (EBOV) was discovered in 1976 around Yambuku, Zaire. A lack of nomenclature standards resulted in a variety of designations for each isolate, leading to confusion in the literature and databases. We sequenced the genome of isolate E718/ME/Ecran and unified the various designations under Ebola virus/H.sapiens-tc/COD/1976/Yambuku-Ecran.

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Ebola virus (EBOV) was discovered in 1976 around Yambuku, Équateur Province, Zaire (the present-day Democratic Republic of the Congo). Of the 318 people that became infected with the virus, 280 died (1). At least three EBOV isolates (Ecran, de Roover, and Mayinga) were obtained and distributed among laboratories for further characterization. Due to a lack of nomenclature standards, individual institutes assigned a variety of names to each individual isolate, thereby leading to confusion in the literature and in databases.

Filovirus experts recently established a naming scheme for filoviruses (2, 3) and have designated reference isolates and sequences for each filovirus to facilitate research, automatic genome annotation, and database searches (4). Among these efforts are attempts to identify and remove possibly redundant isolate designations.

Isolate E718 (known as 718 [5], E718 [6–14], E-718 [15–17], and E 718 [6, 15, 18–21]) is one of the EBOV isolates found in 1976. The origin of E718 is usually not mentioned, or it is stated only that E718 was derived from an acute-phase human blood sample (5, 10–14, 16, 17, 20, 21). Other authors elaborate that the isolate was obtained by S. R. Pattyn (Instituut voor Tropische Geneeskunde [ITG], Antwerp, Belgium) (6, 15, 18). One article refers to the isolate as the Zaire prototype (8), whereas a very recent publication states that “E718 [is] . . . one of four isolates (including . . . Mayinga)” (9). Finally, one publication states that E718 “was derived from a Zairean patient (ME) during the Zairean outbreak” (7). One of two publications detailing isolate ME states that this virus was “isolated by. . . Pattyn . . . Bowen, and . . . Webb from serum of adult female human being manifesting severe . . . illness” and that “[d]isease [was] contracted in Yambuku . . . and case transported to mission hospital in Kinshasa” (22). Other publications specify that patient ME was a 42-year-old woman who fell ill on 23 September 1976 in Yambuku and was transported by air to Kinshasa (23, 24). She died on 30 September 1976 (25, 26).

From a review of internal documents at institutes that still store

E718 cultures (CDC, Defence Science and Technology Laboratory [Dstl], ITG, and the United States Army Medical Research Institute of Infectious Diseases [USAMRIID]), detailed descriptions of the 1976 outbreak (25, 26), and personal observations of authors who participated in its control (K.M.J. and G.v.d.G.), we conclude that E718 is a synonym of ME. Both designations are, in all likelihood, synonyms of the EBOV variant designation Ecran (often incorrectly spelled Eckron in the literature), which is derived from the name of Sister Myriam (Louise Ecran), who was one of two nurses that were transported from Yambuku to Kinshasa (the other one being Sister Edmonda [Jeanne de Roover]) (25, 26).

We sequenced E718 using infected cell-culture supernatant originally frozen at USAMRIID on 19 May 1978. Following sample preparation performed as described in Kugelman et al. (27), its sequence was determined with Ion Torrent PGM and Applied Biosystems Sanger technology with EBOV-specific oligonucleotides. The consensus genome was generated via reference alignment to that of RefSeq accession no. NC_002549 (Ebola virus/H.sapiens-tc/COD/1976/Yambuku-Mayinga [4]) using SeqMan Pro (DNASTar). As expected, the obtained sequence was nearly identical with that of RefSeq accession no. NC_002549 and has been deposited under the unifying designation Ebola virus/H.sapiens-tc/COD/1976/Yambuku-Ecran.

Nucleotide sequence accession numbers. The GenBank accession no. of EBOV E718, now designated Ebola virus/H.sapiens-tc/COD/1976/Yambuku-Ecran, is [KM655246](https://www.ncbi.nlm.nih.gov/nuclot/KM655246).

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