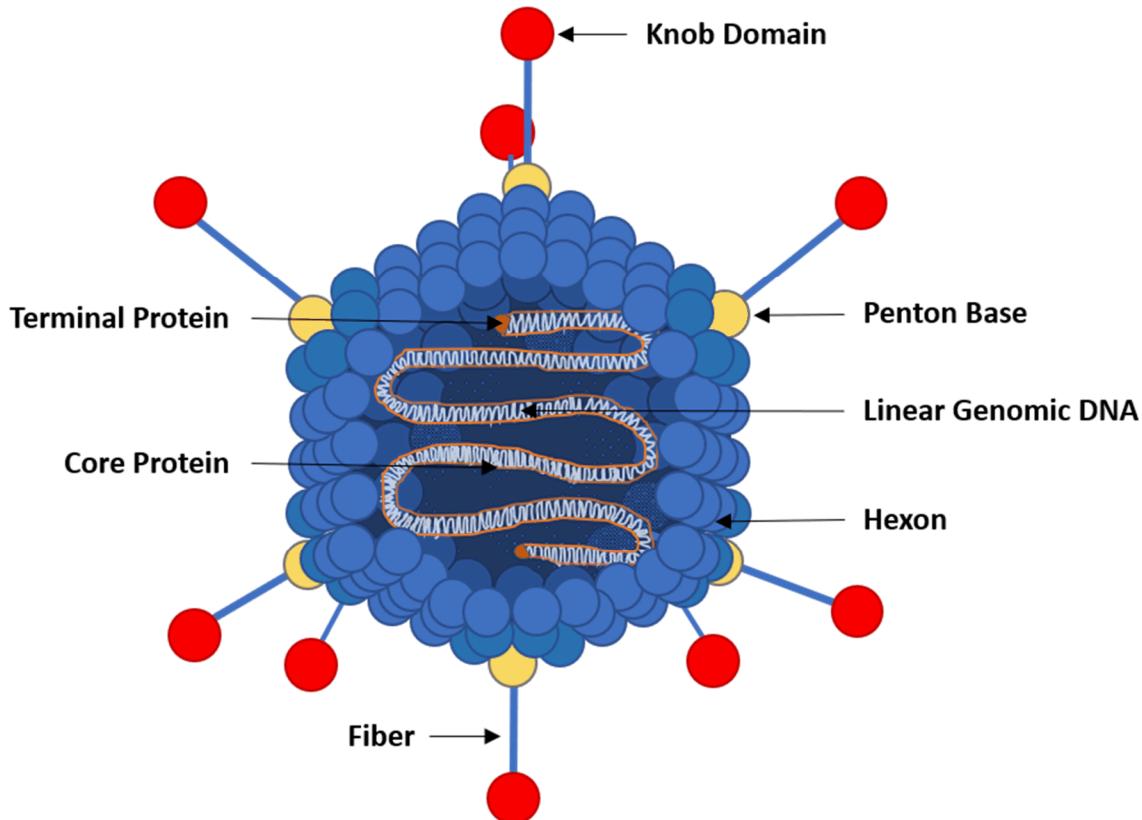


3.2.S.1.2 STRUCTURE

Wild type Adenovirus type 26 (Ad26) consists of non-enveloped virions each containing a single linear molecule of double-stranded DNA (dsDNA) of approximately 35 kilobase pairs (reference GenBank: EF153474.1) which encode the adenoviral proteins. The dsDNA molecule is encapsulated by an icosahedral protein structure consisting of the structural proteins II (hexon), III (penton), IV (fiber), VI, VIII, IX and IIIa. Core proteins V, VII, X and the terminal protein are directly associated with the viral genome (refer to [Figure 1](#)).

Figure 1: Schematic Representation of the Structure of the Ad26 Virion



The recombinant Ad26 vector, Ad26.COV2.S, is replication-incompetent due to deletions in the E1 gene region (Δ E1A/E1B). The E1 deletion renders the vector replication-incompetent in non-complementing cells such as human cells. In Ad5 E1 complementing cell lines (e.g., HEK293, PER.C6 TetR and HER96 cells lines) the virus can be propagated. In addition, a part of the E3 region has been removed (Δ E3) to create sufficient space in the viral genome for insertion of foreign antigens, and the Ad26 E4 orf6 has been exchanged by the Ad5 homologue to allow production of replication-incompetent Ad26 vectors in Ad5 E1 complementing cell lines. The Ad26.COV2.S vector contains a transgene in the Δ E1A/E1B region which encodes a modified full-length SARS-CoV-2 spike (S) protein with stabilizing modifications, where the wild-type full-length S gene information was obtained from a SARS-CoV-2 clinical isolate (Wuhan, 2019, whole genome sequence NC_045512).

A schematic representation of the Ad26.COV2.S vector is shown in [Figure 2](#).

Figure 2: Schematic Representation of the Ad26.COV2.S Vector Genome



The amino acid sequence of the immunogen is shown in [Table 1](#).

Table 1: Immunogen Amino Acid Sequence (Based on the Transgene Sequence)

Vector	Immunogen Amino Acid Sequence
Ad26.COV2.S	MFVFLVLLPLVSSQCVNLTRTQLPPAYTNSFRGVYYPDVKFRSSVLHSTQDLFLPFFS NVTWFHAIHVSGTNGTKRFDPNVLVPFDGKVYFASTEKSNIIRGWIFGTTLDSKTQSLLIV NNATNVVIKVCEFCQFCNDPFLGVYYHKNNKSWMESEFRVYSSANNCTFEYVSQPFLM DLEGKQGNFKNLREFVFKNIDGYFKIYSKHTPINLVRDLPQQGFSALEPLVDLPIGINITRF QTLLALHRSYLTPGDSSSGWTAGAAAYVGYLQPRTFLLKYNEENGTTDAVDCALDPL SETKCTLKSFTVEKGIVQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASVYAWNRK RISNCVADYSVLYNSASFSTFKCYGVSPKTLNDLCFTNVYADSFVIRGDEVRIQAPIGQT GKIADNYKLPDDFTGCIAWNSNNLDSKVGGNNYLYRFLRKSNLKFPERDISTEIYQ AGSTPCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTN LVKNKCVNFNFNGLTGTGVLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSF GGVSITPGNTSNQAVLYQDVNCTEVPAIHADQLPTWRVYSTGSNVFQTRAGCL IGAEHVNNSYECDIPIGAGICASYQTQTNPSRAGSVASQSIAYTMSLGAENSVAYSNN SIAIPTNFTISVTTEILPVSMKTSVDCMYICGSTECNLLLQYGSFCTQLNRALTGIA VEQDKNTQEVAQVKQIYKTPPIKDFFGNFSQILPDPSKPSKRKFIEDLLFNKVTLADA GFIKQYGDCLGDIAARDLICAQKFNGLTVLPLLTDDEMIAQYTSALLAGTITSGWTFGA GAALQIPFAMQMAYRFNGIGVTQNVLYENQKLIAQFNSAIGKIQDSLSSSTASALGKLQ DVVNQNAQALNTLVQLSSNFGAIISSVLDILSRLLDPPEAEVQIDRLITGRLQSLQTYVT QQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLMSFPQSAPHGVVFLHVTY VPAQEKNFTTAPAICHDGKAHFREGVFSNGTHWFVTQRNFYEPQIITDNTFVSGNC DVVIGIVNNNTVYDPLQPELDSFKEELDKYFKNHTSPDVLGDISGINASVVNIQKEIDRL NEVAKNLNESLIDLQELGKYEQYIKWPWIWLGFIAGLIAIVMTIMLCCMTSCCSCLK GCCSCGSCCKFDEDDSEPVLKGVKLHYT

A detailed description of the viral vector design and construction is provided in 3.2.S.2.3 Control of Materials – Source, History, and Generation of the Pre-Master Virus Seed.