

Mechanical disassembly of single virus particles reveals kinetic intermediates predicted by theory

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Supplementary Material

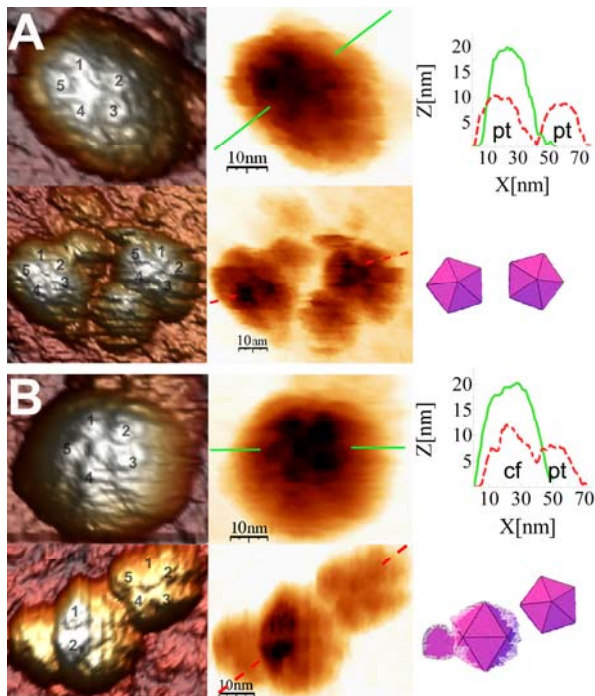


Fig. S1. AFM images of individual MVM capsids before and after fragmentation. Each panel (A or B) refers to a different MVM particle, and each includes images of the same particle before (top) or after (bottom) indentation. Both intact particles were oriented with a S5 axis on top. After indentation, only several capsid fragments remain. In panel A, two detached pentamers of capsomers can be observed. In panel B, at least one detached pentamer of capsomers and one larger fragment that includes a pentamer of capsomers are identifiable; in the 3D images, the five capsomers in each removed pentamer have been numbered. Each panel (right side) includes: height profiles of the capsid before fragmentation (continuous line) and of the larger capsid fragments (*cf*) and free pentamers (*pt*) (dashed line); and a scheme of the two pentamers released among other fragments (A) or of a released pentamer and the incomplete capsid left (B).

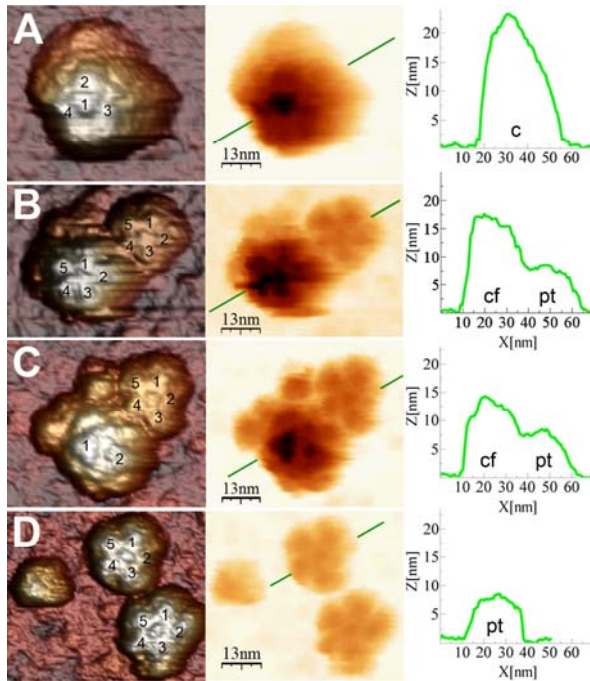


Fig. S2. Successive AFM images of a same MVM capsid subjected to mechanical force. The intact capsid in (A) is oriented with a S3 axis on top. In (B), a pentamer of capsomers is detached, leaving an incomplete but otherwise intact particle (the capsid has rotated and now shows a S5 axis on top). In (C), several individual capsomers have been additionally released from the incomplete capsid (the capsid rotated again and now shows a S2 axis on top). In (D), the capsid has been totally disrupted, releasing a second pentamer (two detached pentamers and a smaller fragment can be observed). Each panel (right side) includes height profiles of the intact capsid (*c*) (A), of the incomplete capsid (*cf*) and the detached pentamer (*pt*) (B,C), or of one of the remaining detached pentamers (D).

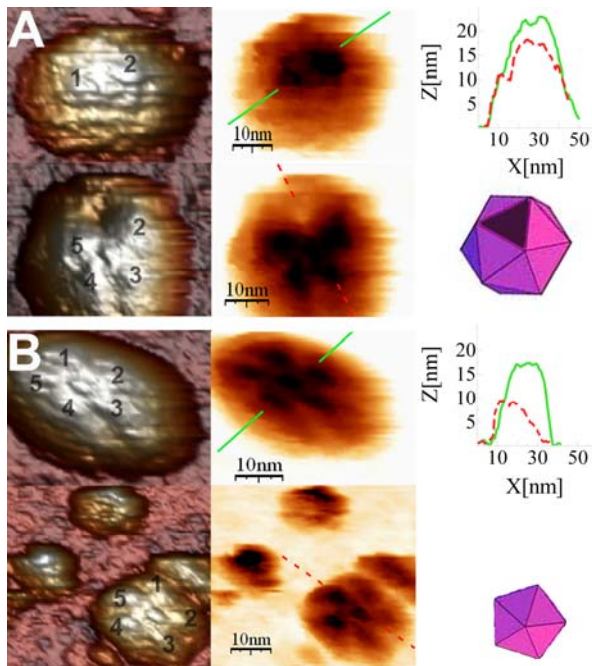


Fig. S3. AFM images of individual MVM virions before and after indentation. Each panel (A or B) refers to a different particle, and each includes images of the same particle before (top) or after (bottom) removal of a single capsomer (A) or fragmentation (B). In panel B, a pentamer of capsomers can be identified among smaller fragments. Each panel (right side) includes: height profiles of the virion before (continuous line) or after (dashed line) indentation, including the profile of the released pentamer; and a scheme of the incomplete capsid left (A) or a free pentamer released (B).