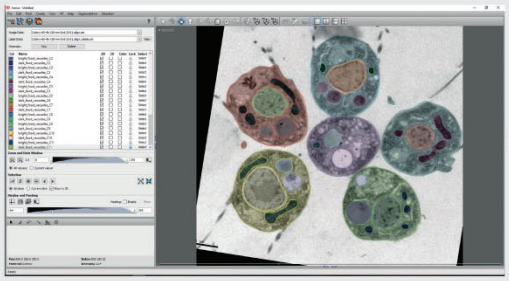
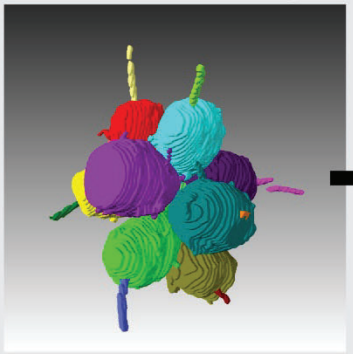
AMIRA

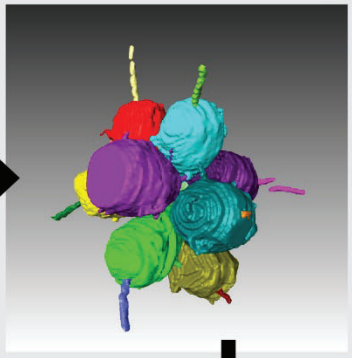
1. segmentation of cells and organelles



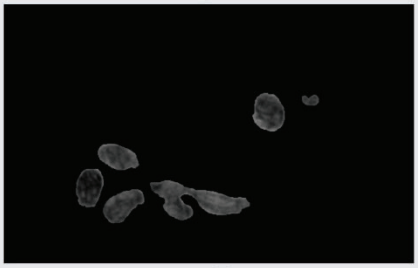
2.1 surface rendering



2.2 first surface smoothing



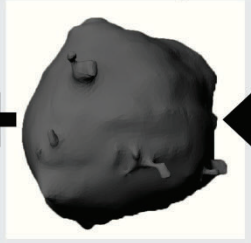
3.1. extraction of every single material (eg. mitochondria) from the image stack



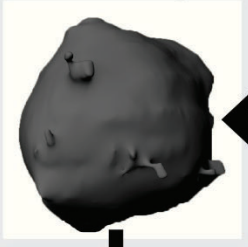
MAYA

2.3 imported surface model

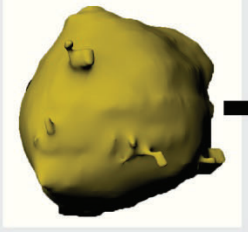
2.4 second surface smoothing



2.5 third surface smoothing



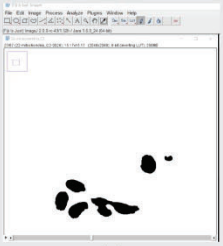
2.6 surface coloration



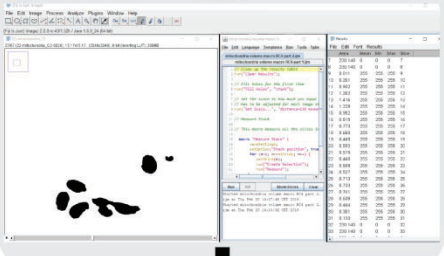
2.7 final surface rendering of a whole colony

FIJI

3.2 masking and preparation of a binary image

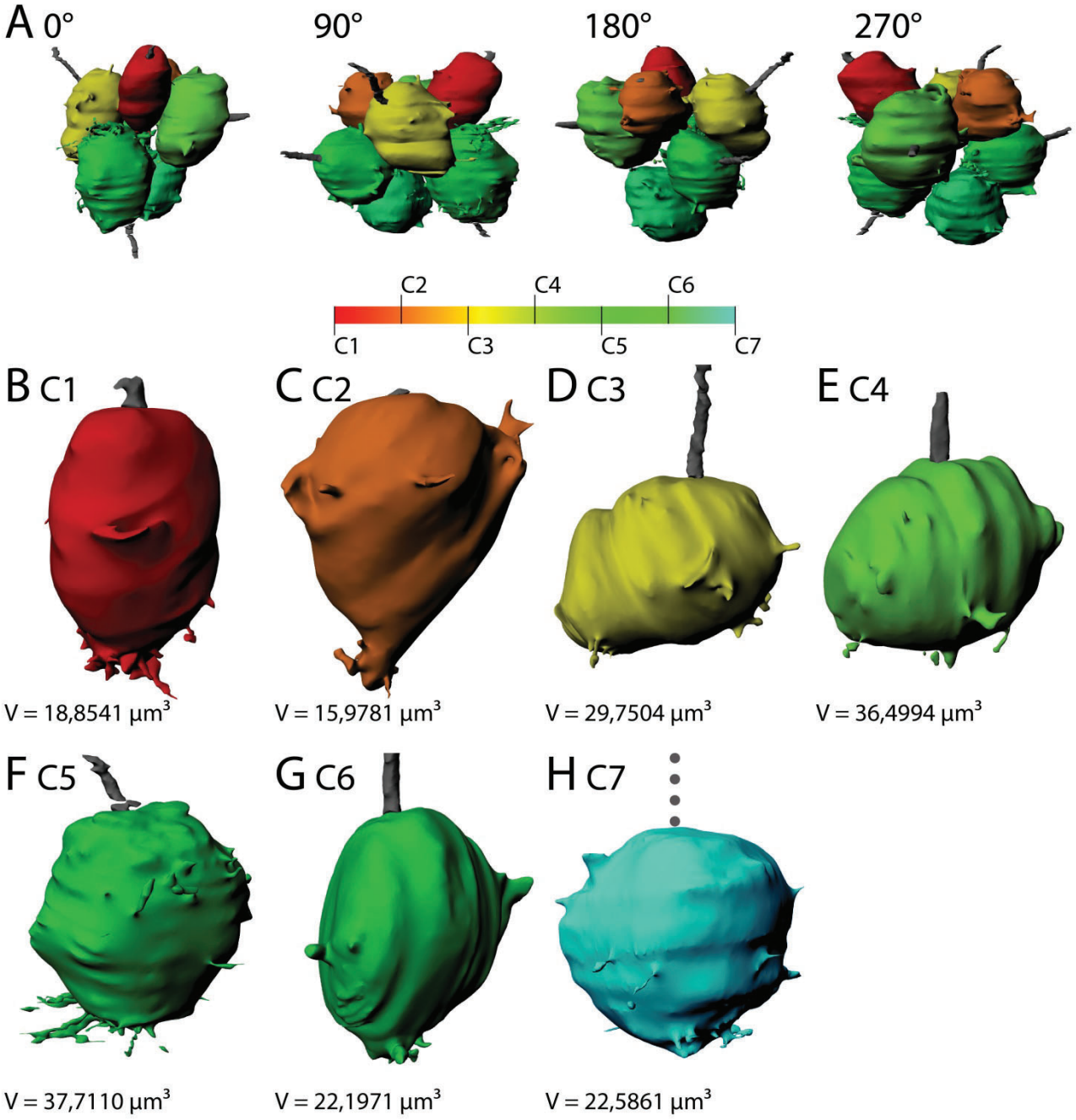


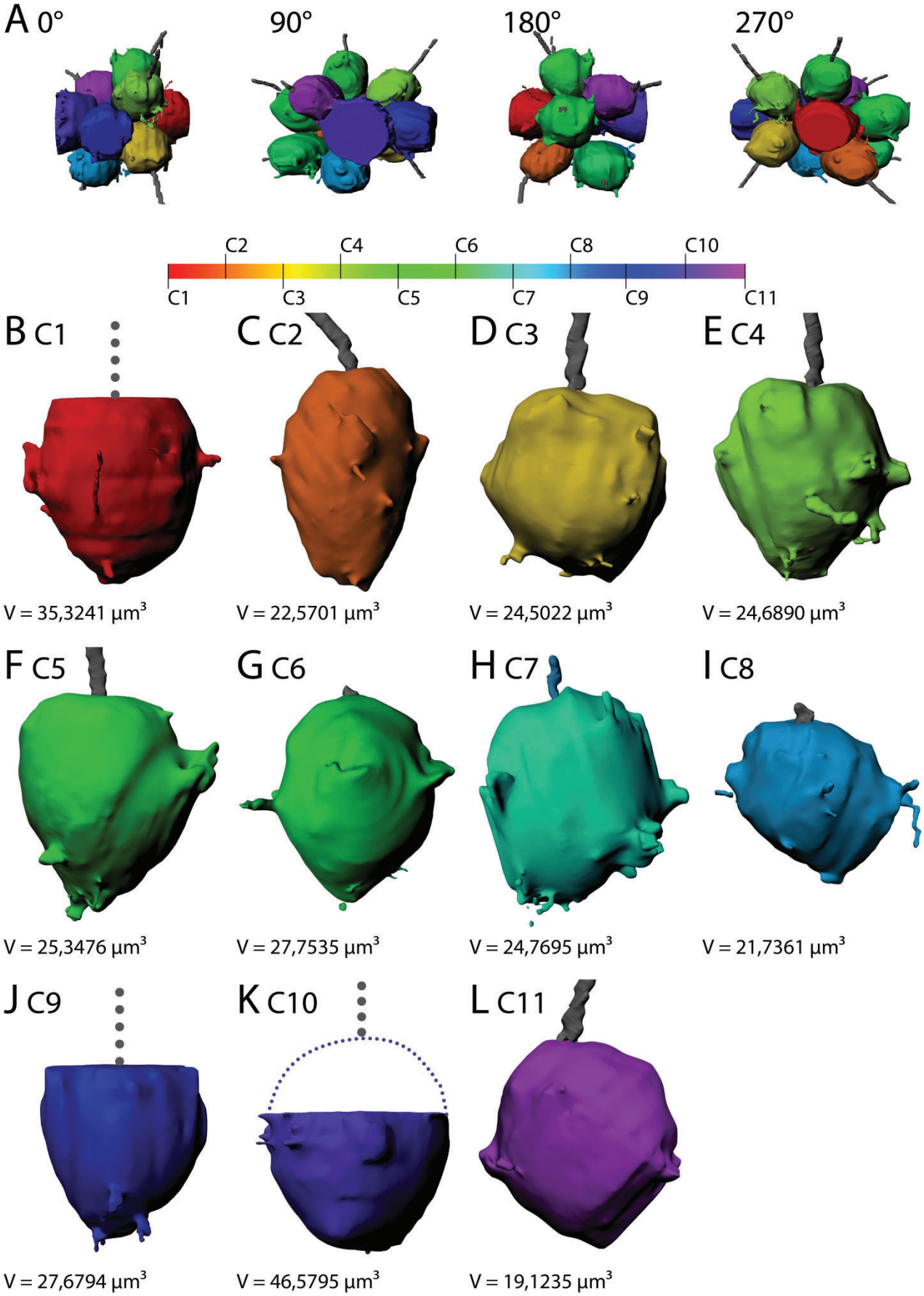
3.3 measurement of the surface area

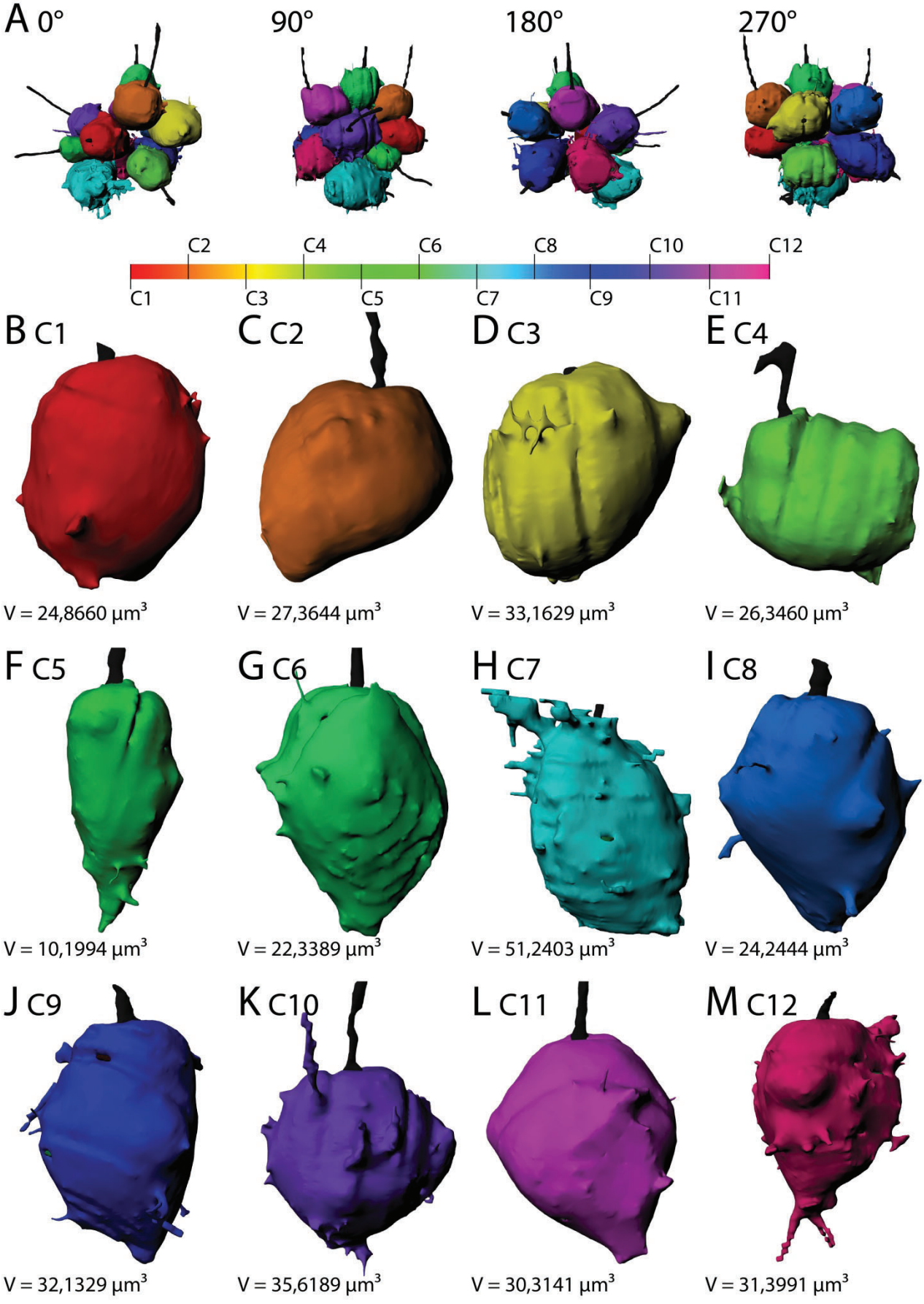


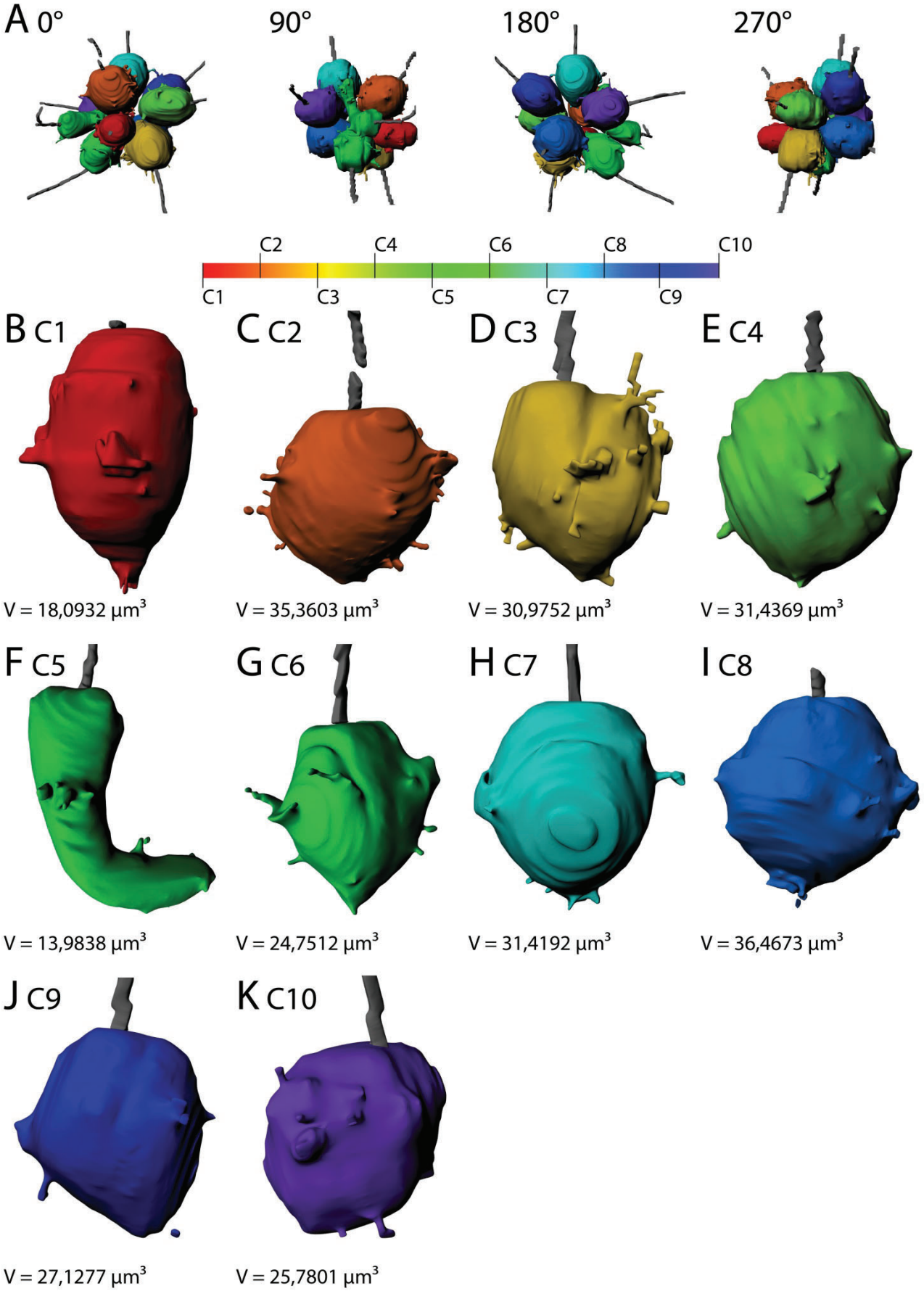
EXCEL

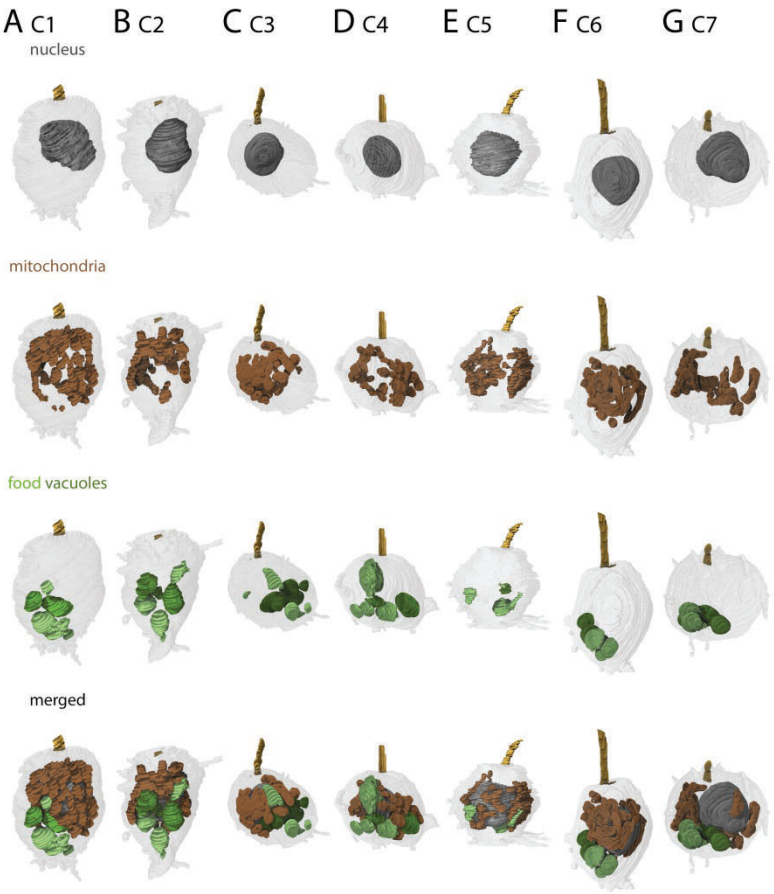
3.4 transfer of the measured values to Microsoft EXCEL and calculation of volumes and ratios

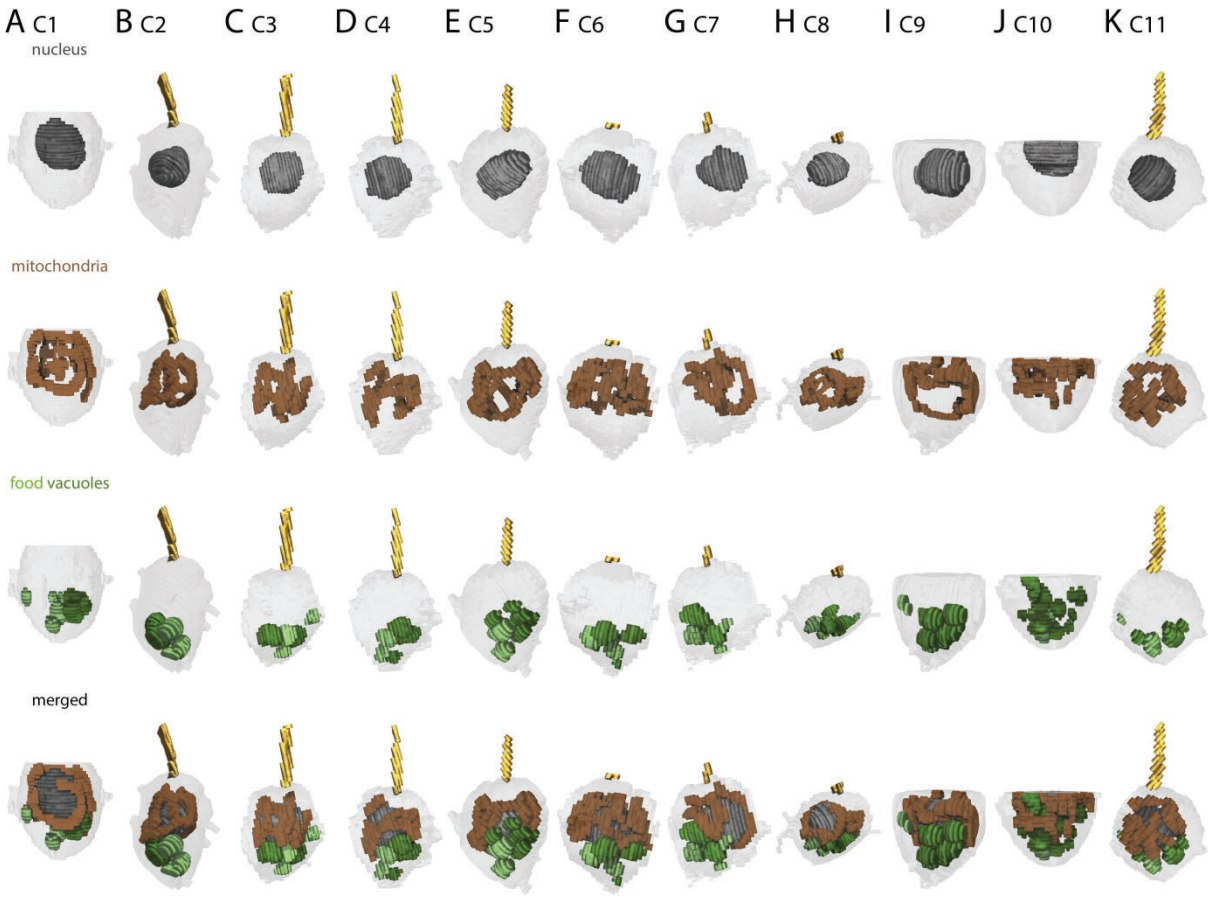

A 0°
90°
180°
270°
C2
C4
C6
C1
C3
C5
C7
B C1
C C2
D C3
E C4
V = 18,8541 µm³
V = 15,9781 µm³
V = 29,7504 µm³
V = 36,4994 µm³
F C5
G C6
H C7
V = 37,7110 µm³
V = 22,1971 µm³
V = 22,5861 µm³

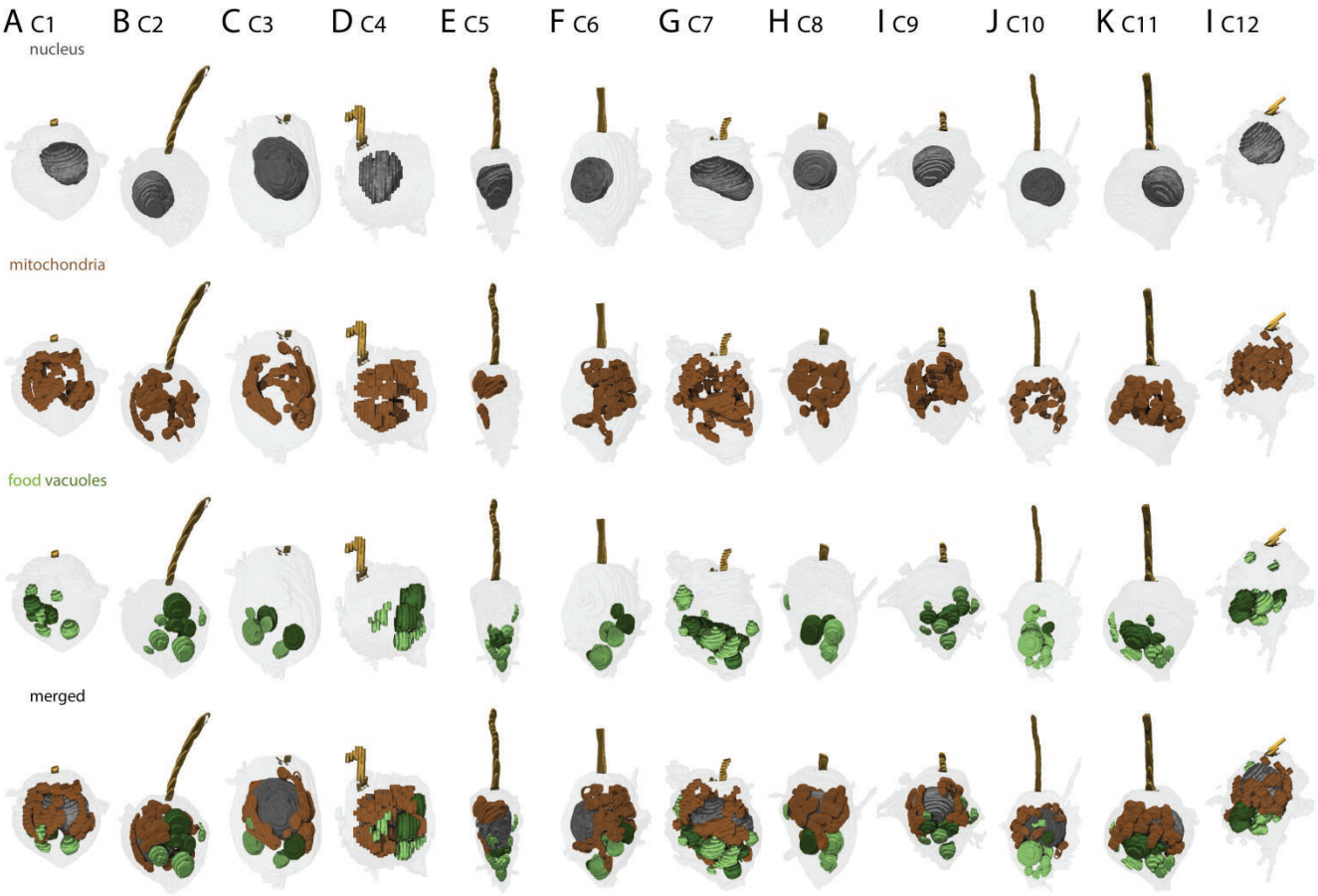

A 0°
90°
180°
270°
C2
C4
C6
C8
C10
C1
C3
C5
C7
C9
C11
B C1
C C2
D C3
E C4
V = 35,3241 µm³
V = 22,5701 µm³
V = 24,5022 µm³
V = 24,6890 µm³
F C5
G C6
H C7
I C8
V = 25,3476 µm³
V = 27,7535 µm³
V = 24,7695 µm³
V = 21,7361 µm³
J C9
K C10
L C11
V = 27,6794 µm³
V = 46,5795 µm³
V = 19,1235 µm³

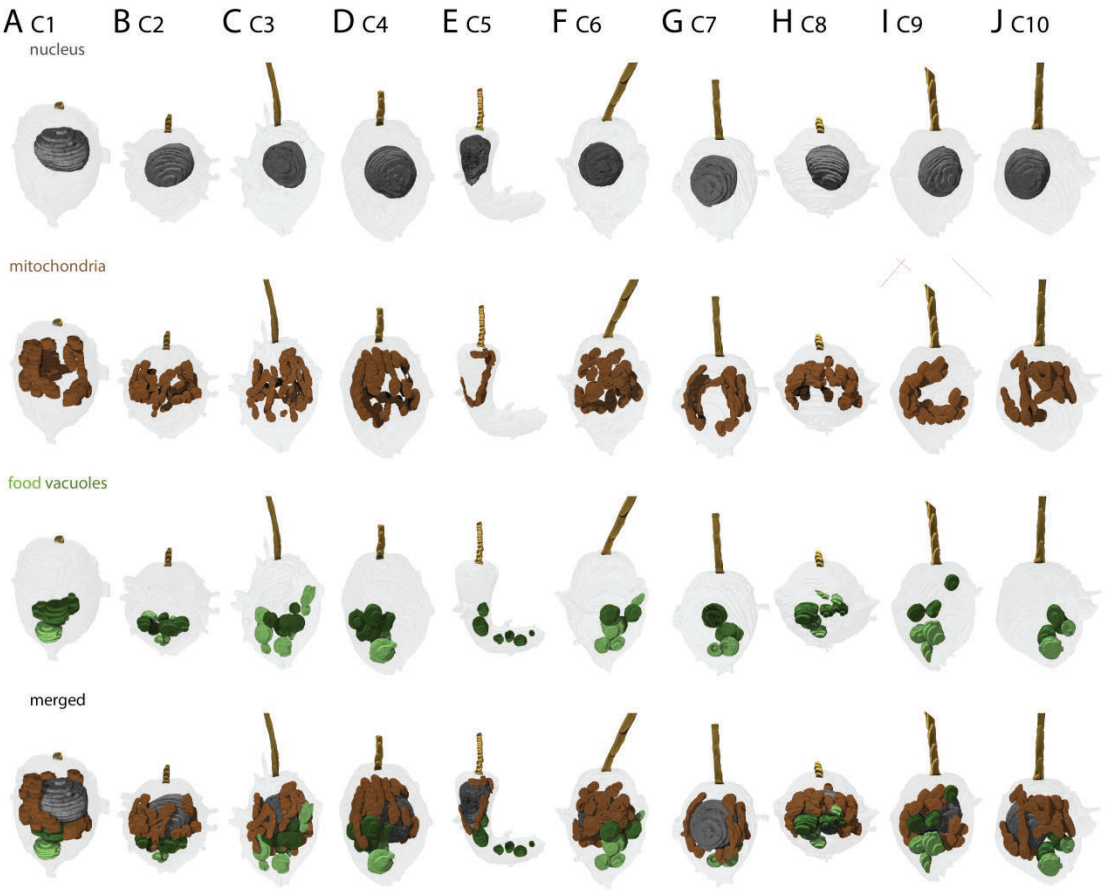

A 0°
90°
180°
270°
C1
C2
C3
C4
C5
C6
C7
C8
C9
C10
C11
C12
B C1
V = 24,8660 µm³
C C2
V = 27,3644 µm³
D C3
V = 33,1629 µm³
E C4
V = 26,3460 µm³
F C5
V = 10,1994 µm³
G C6
V = 22,3389 µm³
H C7
V = 51,2403 µm³
I C8
V = 24,2444 µm³
J C9
V = 32,1329 µm³
K C10
V = 35,6189 µm³
L C11
V = 30,3141 µm³
M C12
V = 31,3991 µm³


A 0°
90°
180°
270°
C1
C2
C3
C4
C5
C6
C7
C8
C9
C10
B C1
V = 18,0932 µm³
C C2
V = 35,3603 µm³
D C3
V = 30,9752 µm³
E C4
V = 31,4369 µm³
F C5
V = 13,9838 µm³
G C6
V = 24,7512 µm³
H C7
V = 31,4192 µm³
I C8
V = 36,4673 µm³
J C9
V = 27,1277 µm³
K C10
V = 25,7801 µm³


A C1
B C2
C C3
D C4
E C5
F C6
G C7
nucleus
mitochondria
food vacuoles
merged


A C1
B C2
C C3
D C4
E C5
F C6
G C7
H C8
I C9
J C10
K C11
nucleus
mitochondria
food vacuoles
merged


A C1
B C2
C C3
D C4
E C5
F C6
G C7
H C8
I C9
J C10
K C11
I C12
nucleus
mitochondria
food vacuoles
merged


A C1
B C2
C C3
D C4
E C5
F C6
G C7
H C8
I C9
J C10
nucleus
mitochondria
food vacuoles
merged