

Automated Urine Particle Digital Imaging Device

UD-10™

Atlas of urine sediment
digital images

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Digital imaging of urine sediment

The Sysmex UD-10 Automated Urine Particle Digital Imaging Device is an integral part of the UN-Series Automated Urinalysis System. A high-performance digital camera captures microscope-quality images, and the particles are grouped by size and presented to the operator for classification. As a complementary device to the UF-5000 Automated Particle Analyzer, the UD-10 offers digital reviews for identifying pathological elements flagged at the UF-5000.

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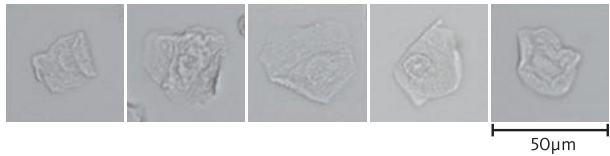
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15 Crystals & seminal elements

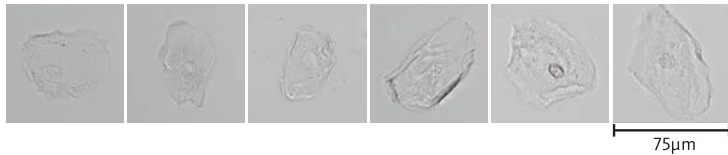
Squamous epithelial cells (superficial layer)

UD-10 classifies these cells under Classes 4 – 6

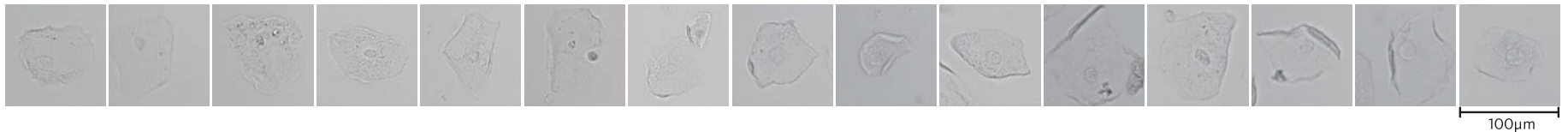
• Class 4 (maximum diameter: 16 – 36 μm)



Class 5 continued



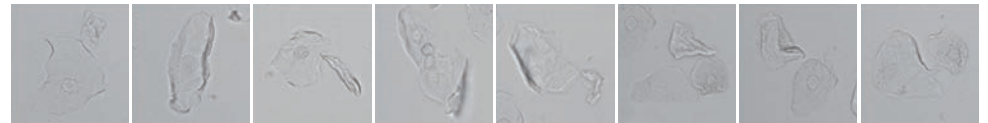
Class 6 continued



• Class 5 (maximum diameter: 36 – 71 μm)



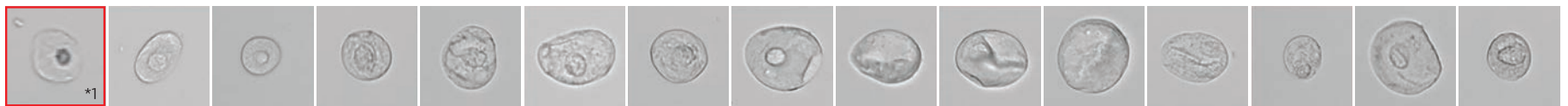
• Class 6 (maximum diameter: 71 – 101 μm)



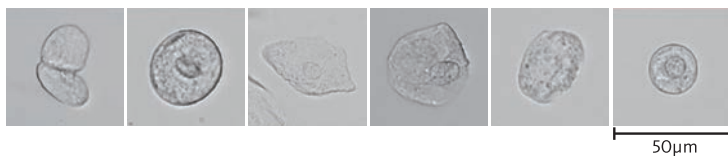
Squamous epithelial cells (intermediate layer)

UD-10 classifies these cells under Class 4 or Class 5 *The basal layer cells can appear in Class 3

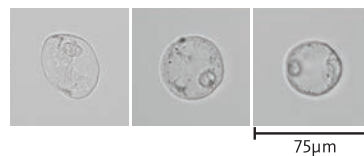
• Class 4 (maximum diameter: 16 – 36 μm)



Class 4 continued



• Class 5 (maximum diameter: 36 – 71 μm)

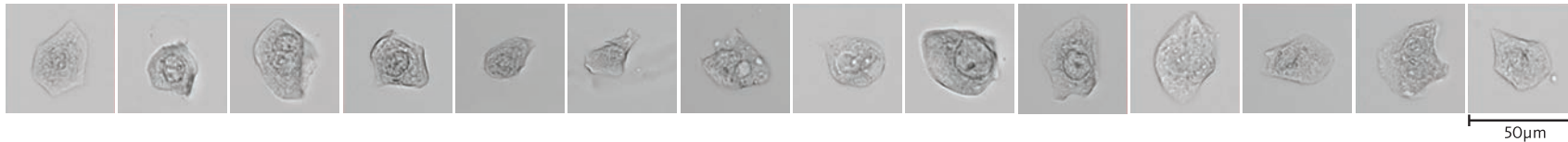


*"Although each cell/particle type will fall predominately within a certain size range, there is no direct link between the size groupings and the cell or particle type".

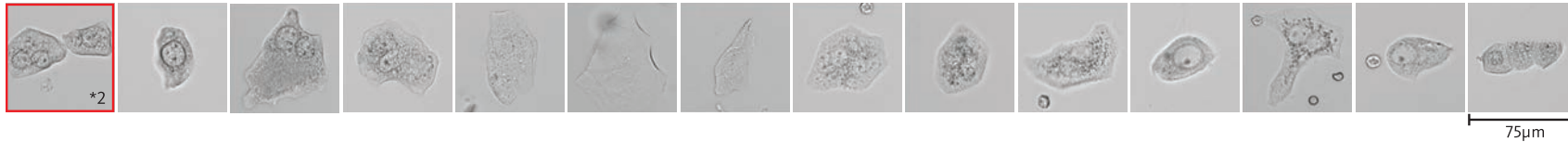
Urothelial cells/Transitional epithelial cells

UD-10 classifies these cells under Classes 4 – 7 *The basal layer cells can appear in Class 3

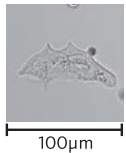
- Class 4 (maximum diameter: 16 – 36 μm)



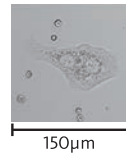
- Class 5 (maximum diameter: 36 – 71 μm)



- Class 6 (maximum diameter: 71 – 101 μm)



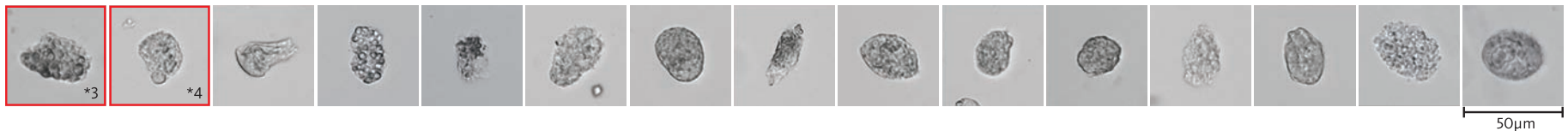
- Class 7 (maximum diameter: 101 – 151 μm)



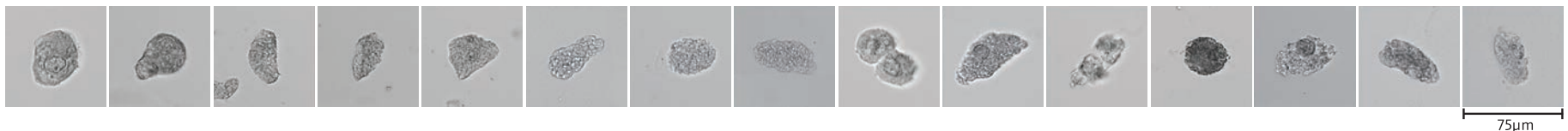
Renal tubular epithelial cells

UD-10 classifies these cells under Class 4 or Class 5 *The basal layer cells can appear in Class 3

- Class 4 (maximum diameter: 16 – 36 μm)



- Class 5 (maximum diameter: 36 – 71 μm)

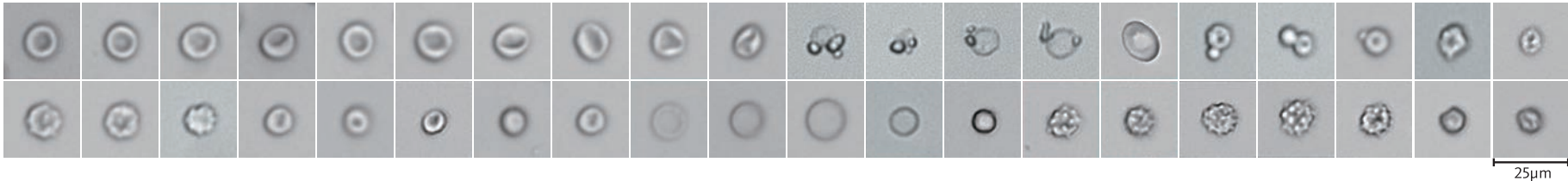


Although each cell/particle type will fall predominately within a certain size range, there is no direct link between the size groupings and the cell or particle type.

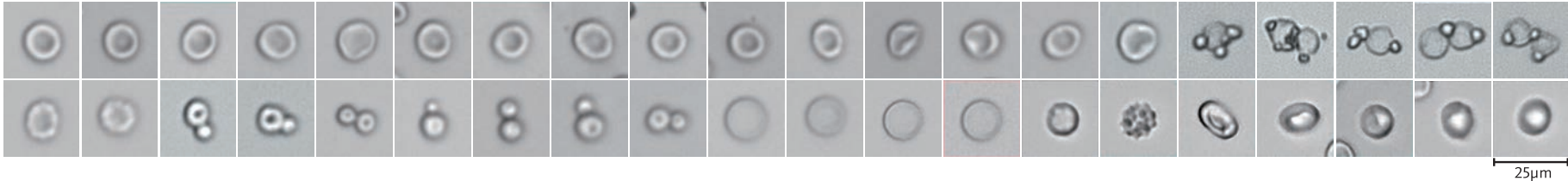
Non-glomerular red blood cells

UD-10 classifies these particles under Classes 2 – 3

- Class 2 (maximum diameter: 6 – 10 μm)



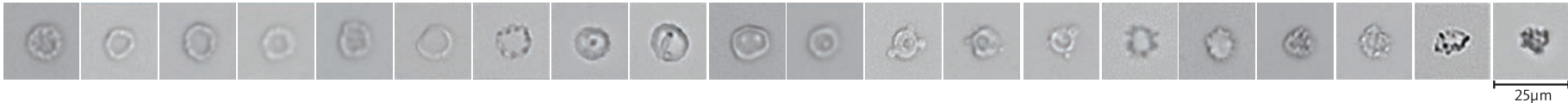
- Class 3 (maximum diameter: 10 – 16 μm)



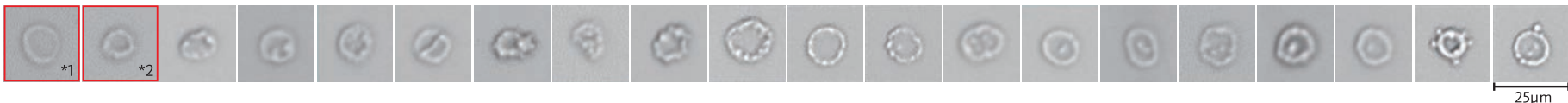
Glomerular (dysmorphic) red blood cells

UD-10 classifies these particles under Classes 2 – 3

- Class 2 (maximum diameter: 6 – 10 μm)



- Class 3 (maximum diameter: 10 – 16 μm)

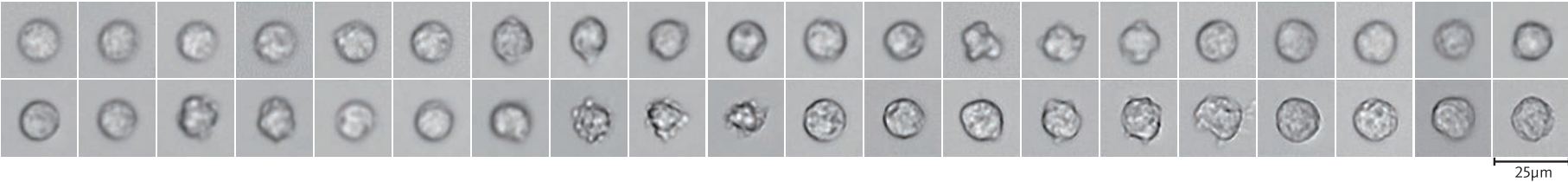


Although each cell/particle type will fall predominately within a certain size range, there is no direct link between the size groupings and the cell or particle type.

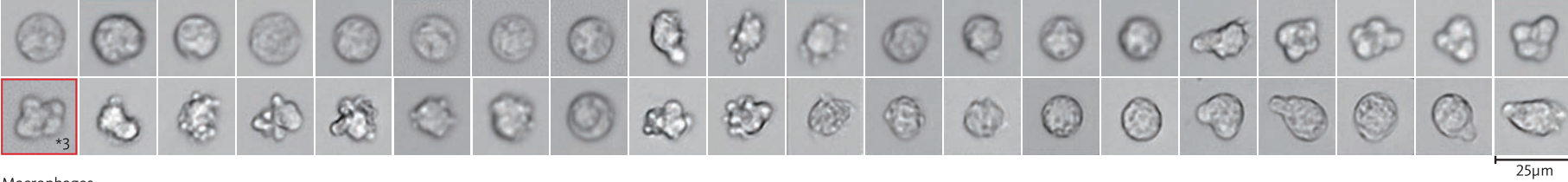
White blood cells

UD-10 classifies these cells under Class 2 and Class 3 (white blood cells may sometimes appear in Class 4 or above)

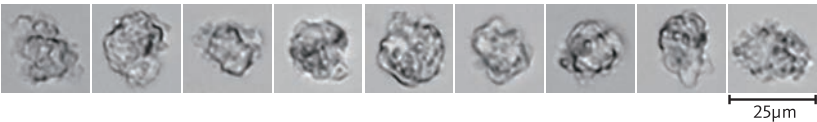
• Class 2 (maximum diameter: 6 – 10 μm)



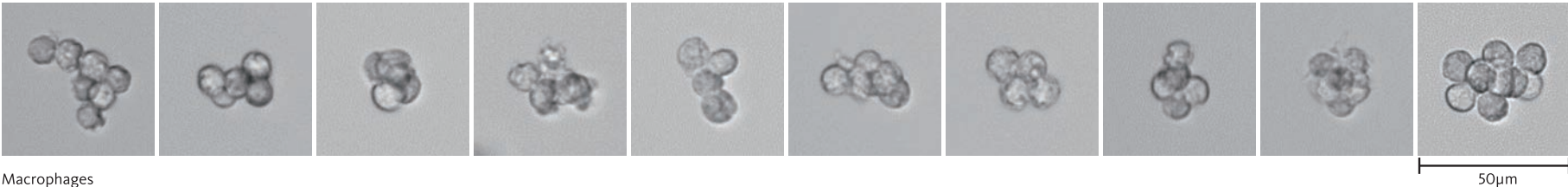
• Class 3 (maximum diameter: 10 – 16 μm)



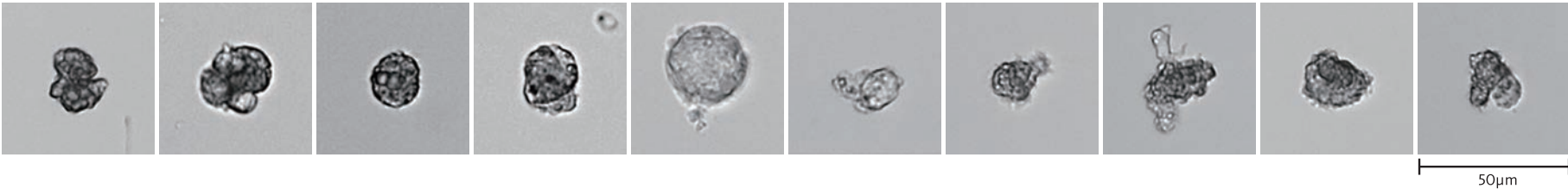
Macrophages



• Class 4 (maximum diameter: 16 – 36 μm)



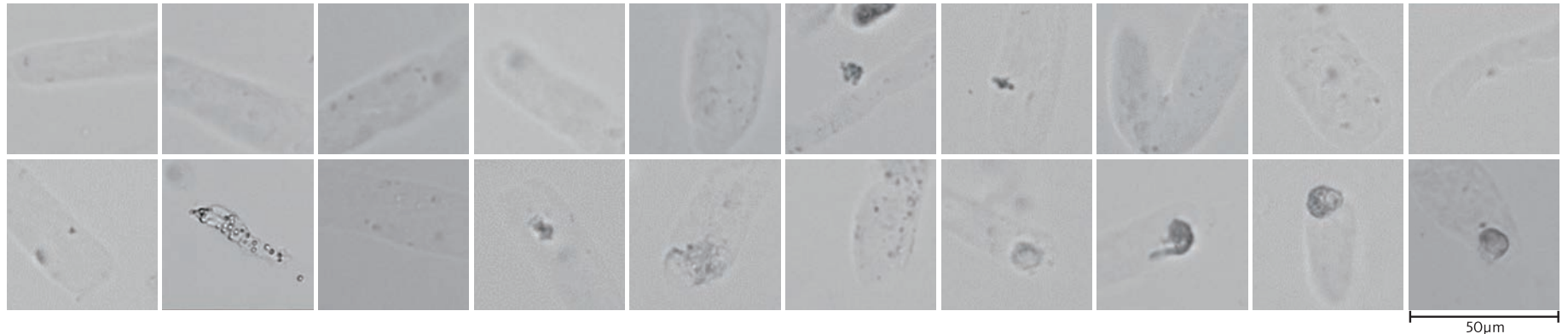
Macrophages



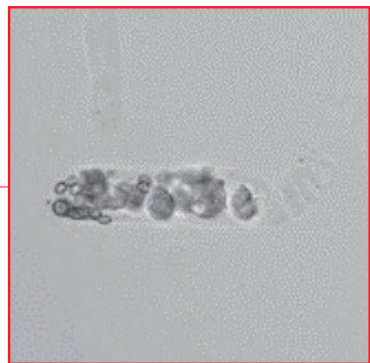
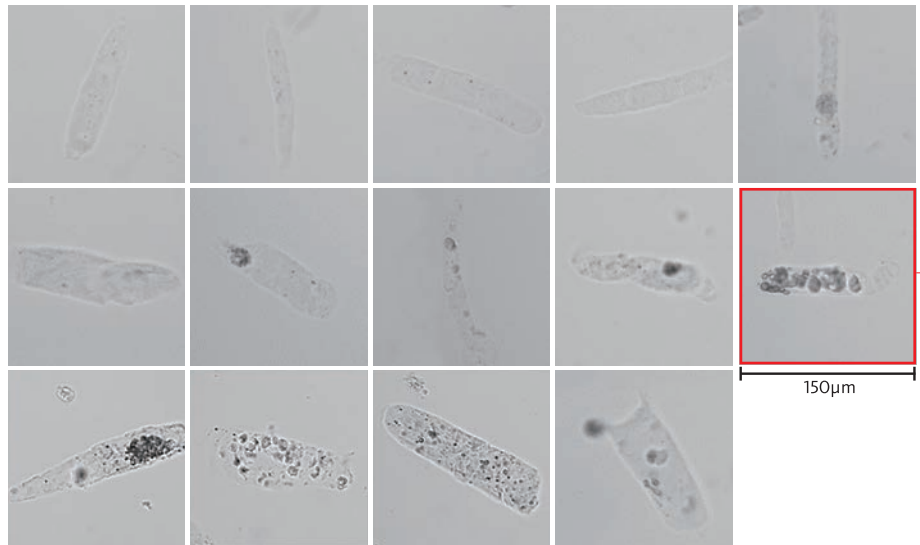
*"Although each cell/particle type will fall predominately within a certain size range, there is no direct link between the size groupings and the cell or particle type".

Casts UD-10 classifies these particles under Classes 4 – 8

- Class 4 (maximum diameter: 16 – 36 μm)

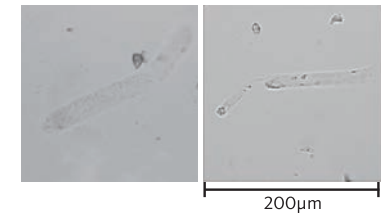


- Class 7 (maximum diameter: 101 – 151 μm)



Note the inclusions of red blood cells and epithelial cells in the matrix of the cast.

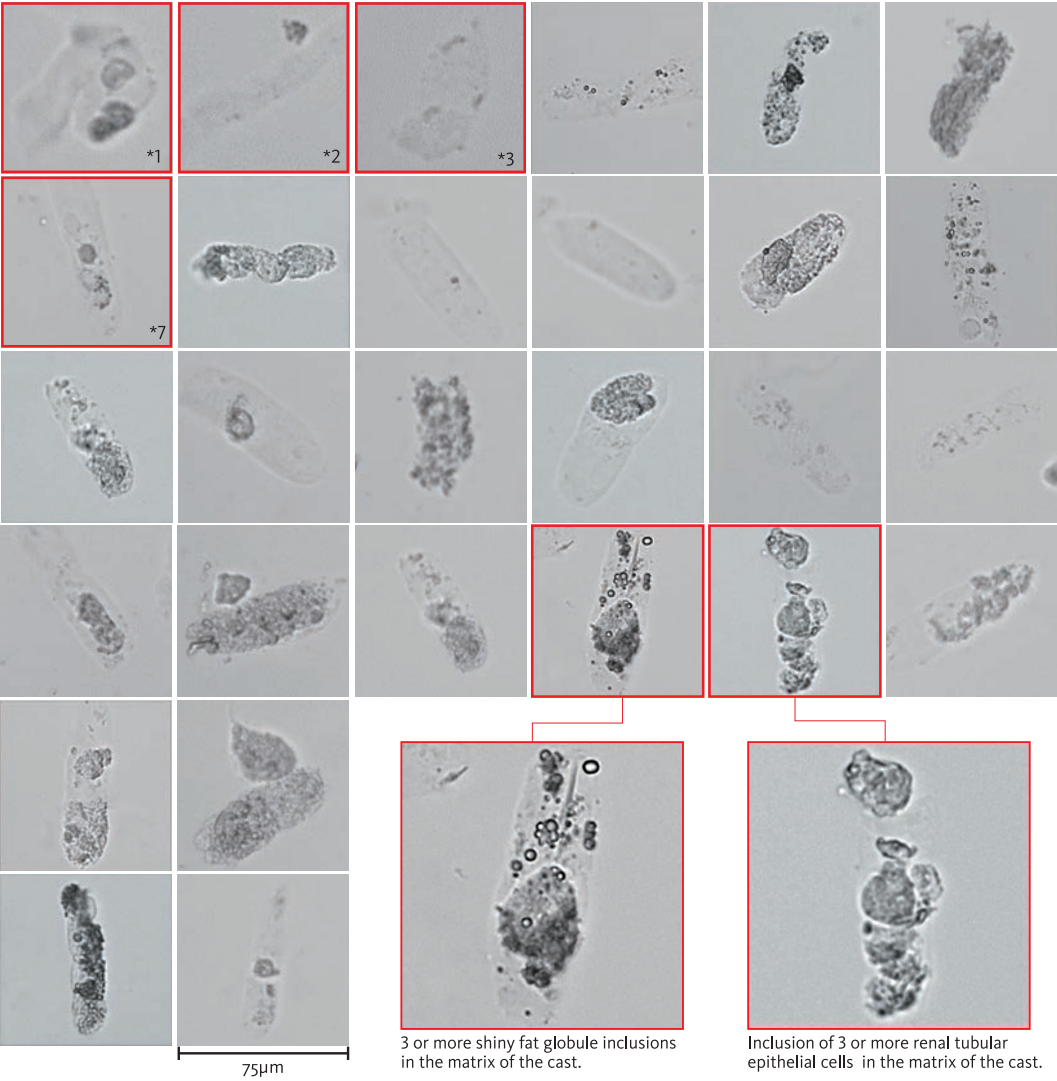
- Class 8 (maximum diameter: > 151 μm)



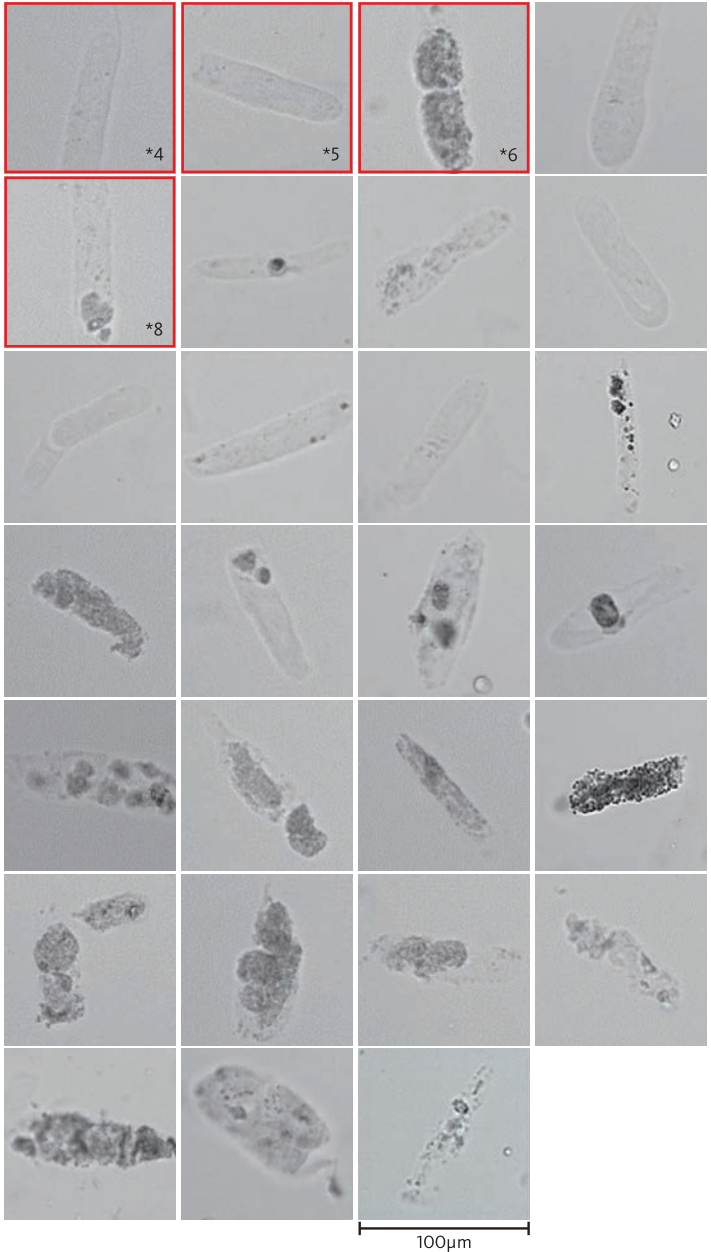
Although each cell/particle type will fall predominately within a certain size range, there is no direct link between the size groupings and the cell or particle type.

Casts UD-10 classifies these particles under Classes 4 – 8

• Class 5 (maximum diameter: 36 – 71 μm)



• Class 6 (maximum diameter: 71 – 101 μm)

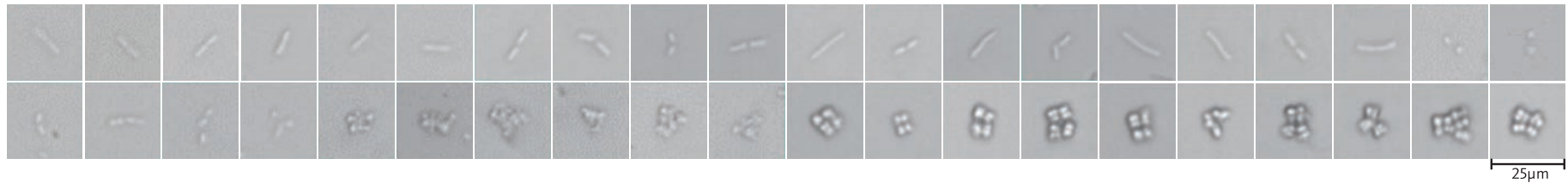


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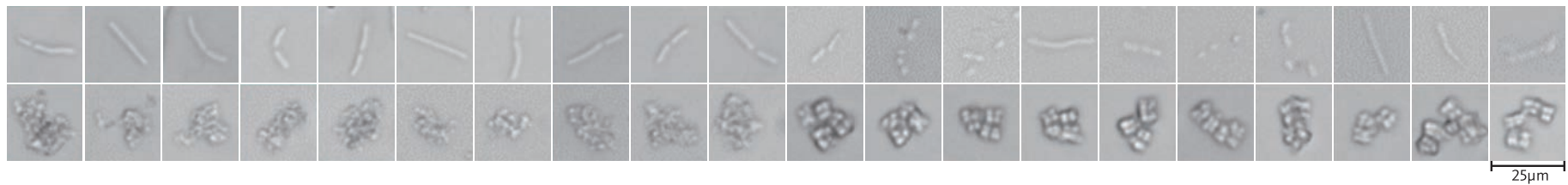
Bacteria

According to the size of "bacteria chain" or "bacteria cluster", the captured items are classified into respective classes.

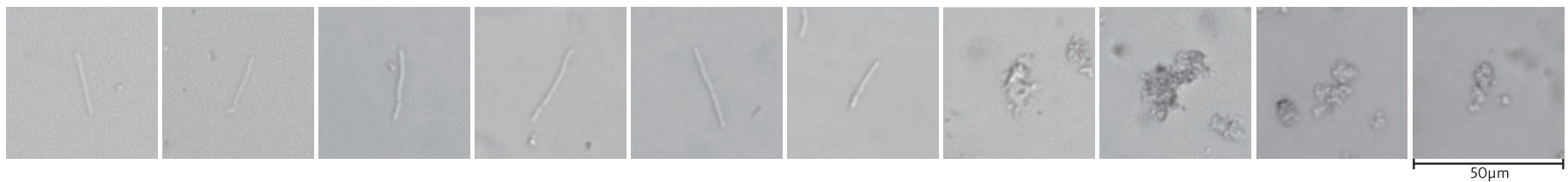
- Class 2 (maximum diameter: 6 – 10 μm)



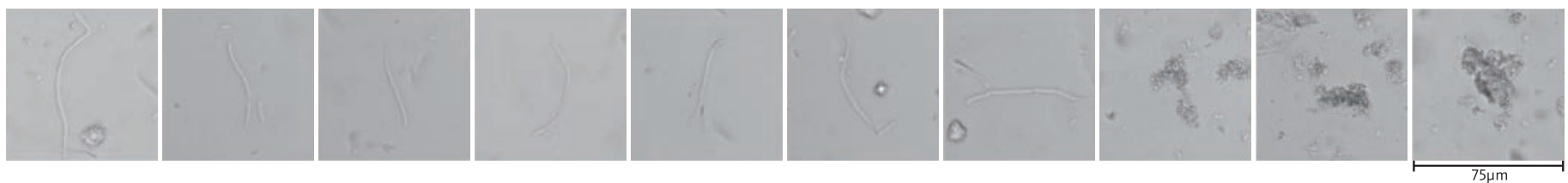
- Class 3 (maximum diameter: 10 – 16 μm)



- Class 4 (maximum diameter: 16 – 36 μm)



- Class 5 (maximum diameter: 36 – 71 μm)

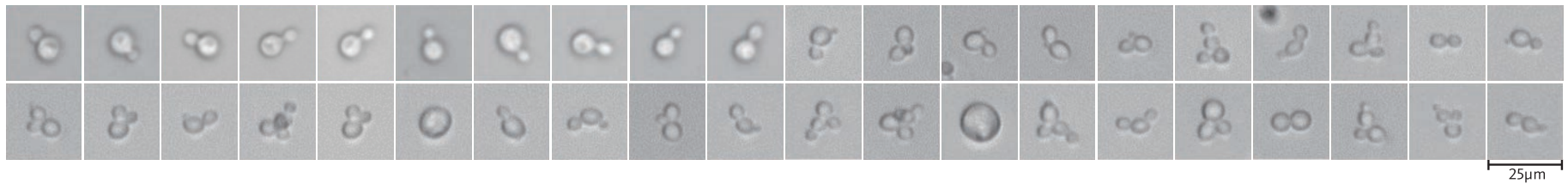


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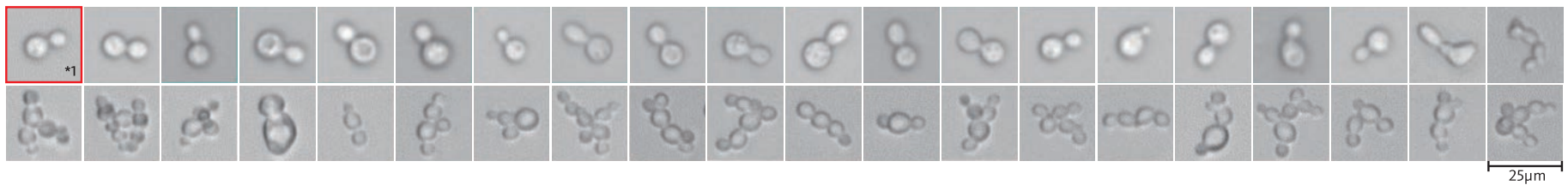
Fungi

According to the size of "budding yeast cluster", the captured items are classified into respective classes.

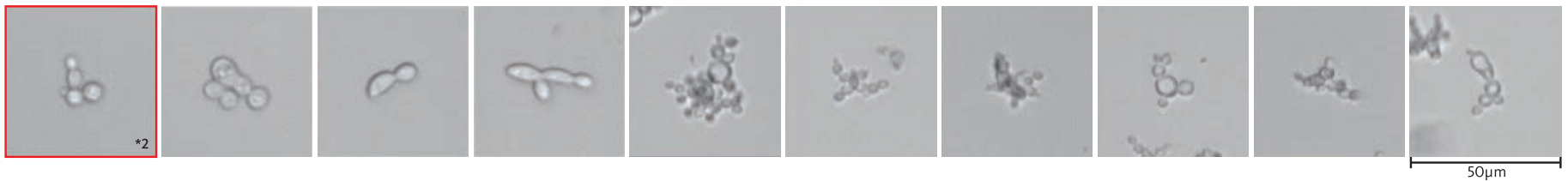
- Class 2 (maximum diameter: 6 – 10 μm)



- Class 3 (maximum diameter: 10 – 16 μm)



- Class 4 (maximum diameter: 16 – 36 μm)



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Seminal component

UD-10 classifies these cells under Class 4 and Class 5

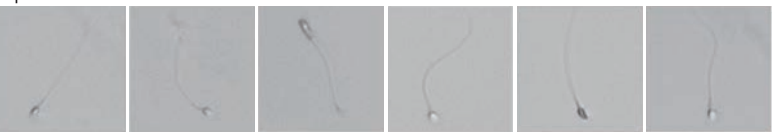
- Class 4 (maximum diameter: 16 – 36 μm)

Spermatozoa



- Class 5 (maximum diameter: 36 – 71 μm)

Spermatozoa



Seminal component



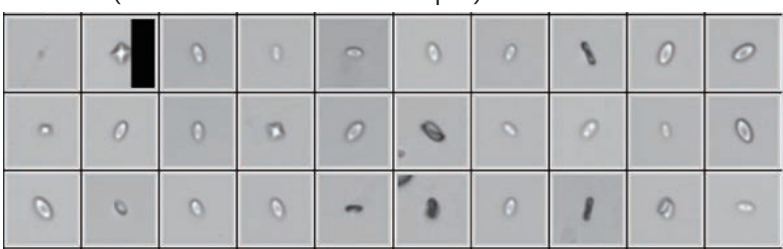
Seminal component



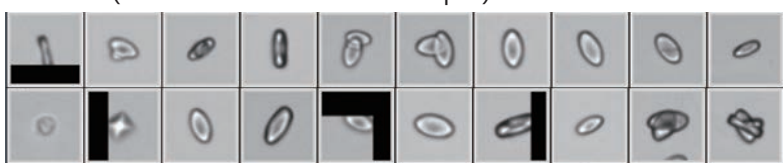
Crystal component

UD-10 classifies crystals from Class 2 to Class 4. It should be checked whether the observation results are almost similar to the ones from UF-5000.

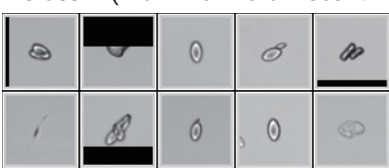
- Class 2 (maximum diameter : 6-10 μm)



- Class 3 (maximum diameter : 10-16 μm)



- Class 4 (maximum diameter : 16-36 μm)



Oval-shaped calcium oxalate crystals are observed. Calcium oxalate crystals show various shapes (e.g., regular octahedron, dumbbell-like, biscuit-like, and elliptical).

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