sysmex

Automated Urine Particle Digital Imaging Device

UD-10™

Atlas of urine sediment digital images

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Together for a better
healthcare journey

Digital imaging of urine sediment

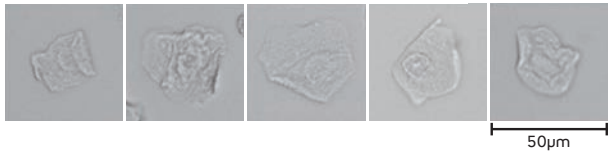
The Sysmex UD-10 Automated Urine Particle Digital Imaging Device is an integral part of the UN-Series Automated Urinalysis System. A high-performance digital camera captures microscope-quality images, and the particles are grouped by size and presented to the operator for classification. As a complementary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

Table of contents

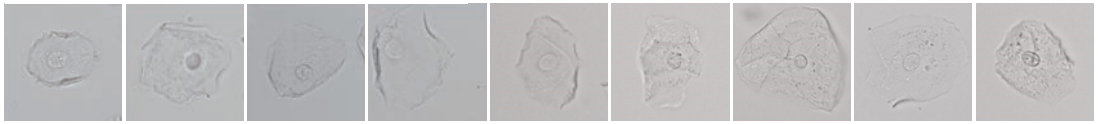
Squamous epithelial cells (superficial layer)

UD-10 classifies these cells under Class 4 - 6

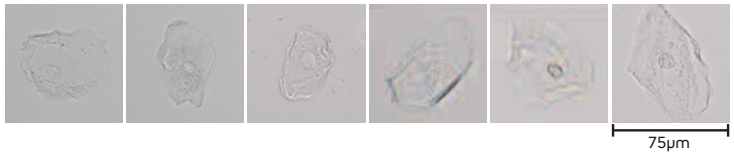
• Class 4 (maximum diameter : 16-36µm)



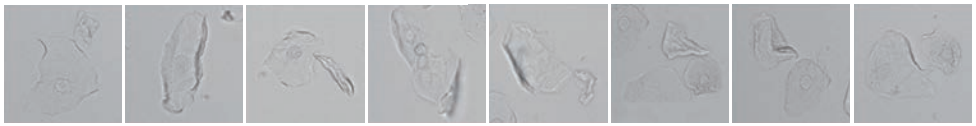
• Class 5 (maximum diameter : 36-71µm)



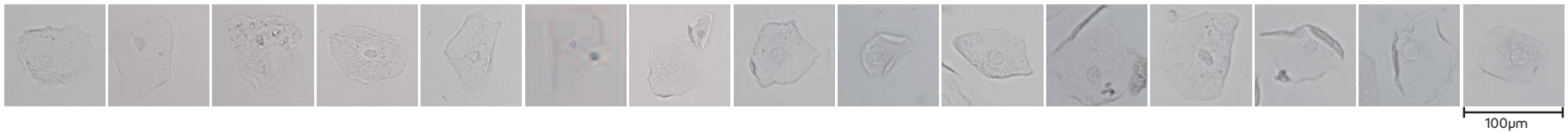
Class 5 continued



• Class 6 (maximum diameter : 36-71µm)



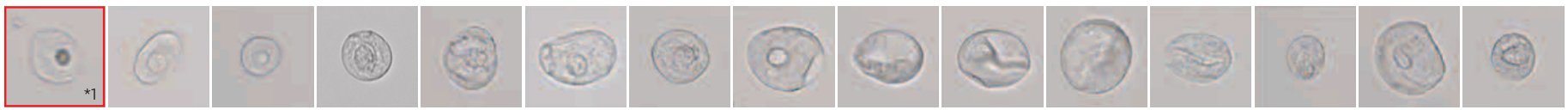
Class 6 continued



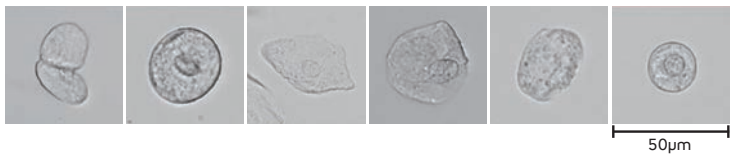
Squamous epithelial cells (superficial layer)

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

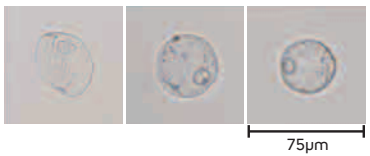
• Class 4 (maximum diameter : 16-36µm)



Class 4 continued



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



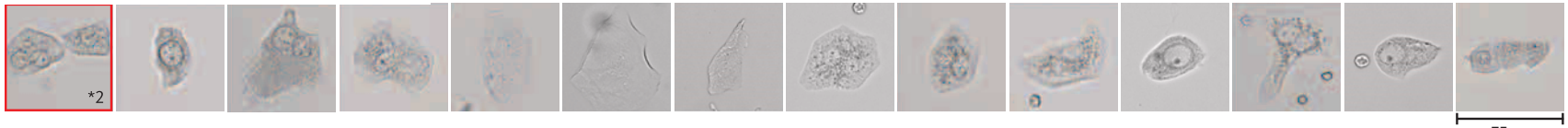
*"Although each cell/particle type will fall predominately within a certain size range, there is no direct link between the size groupings and the cell or particle type".

Urothelial cells/Transitional epithelial cells

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

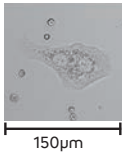
- Class 4 (maximum diameter : 16-36µm)

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



- Class 6 (maximum diameter : 36-71µm)

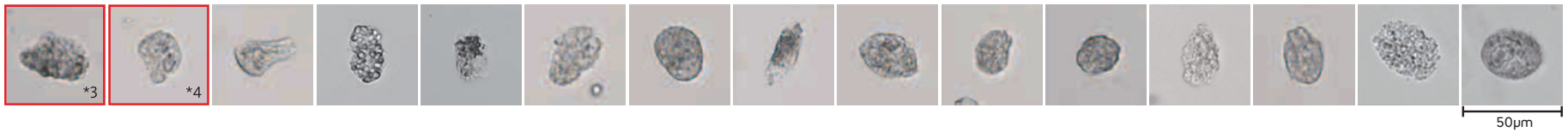
- Class 7 (maximum diameter : 101-151µm)



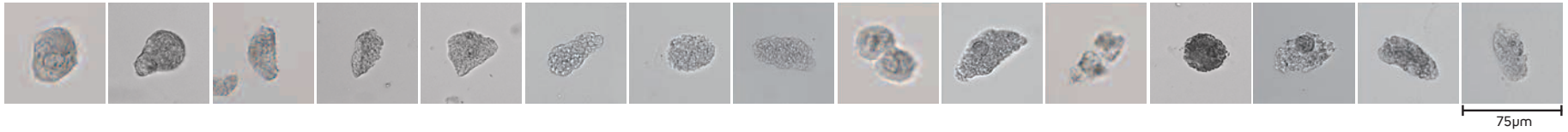
Renal tubular epithelial cells

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

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



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



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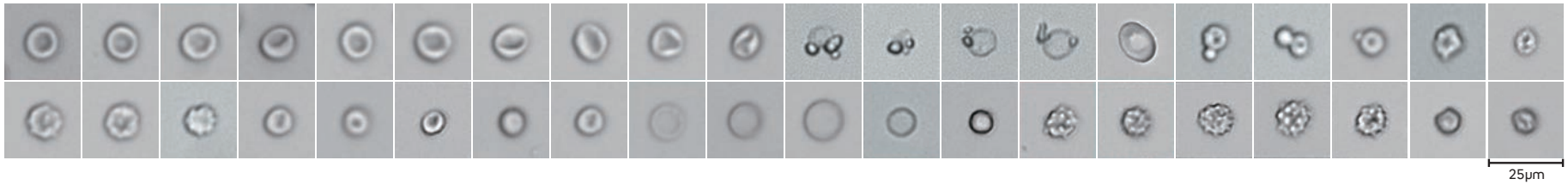
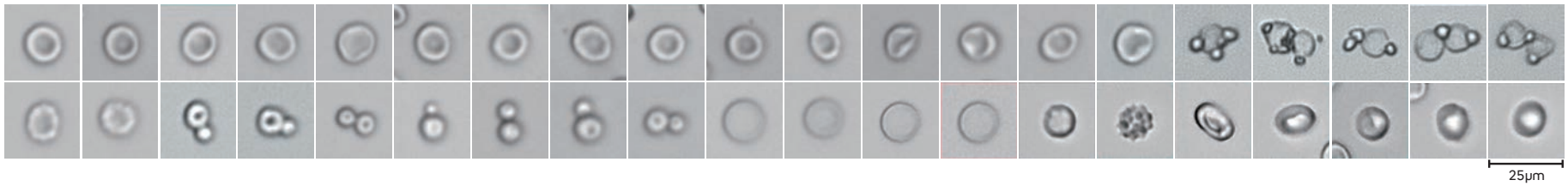
Non-glomerular red blood cells

UD-10 classifies these particles under Class 2 - 3

- Class 2 (maximum diameter : 6-10μm)



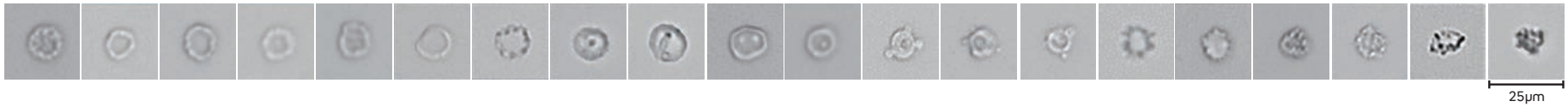
- Class 3 (maximum diameter : 10-16μm)



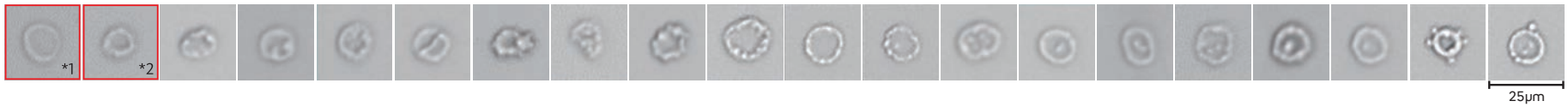
Glomerular (dysmorphic) red blood cells

UD-10 classifies these particles under Class 2 - 3

- Class 2 (maximum diameter : 6-10μm)



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



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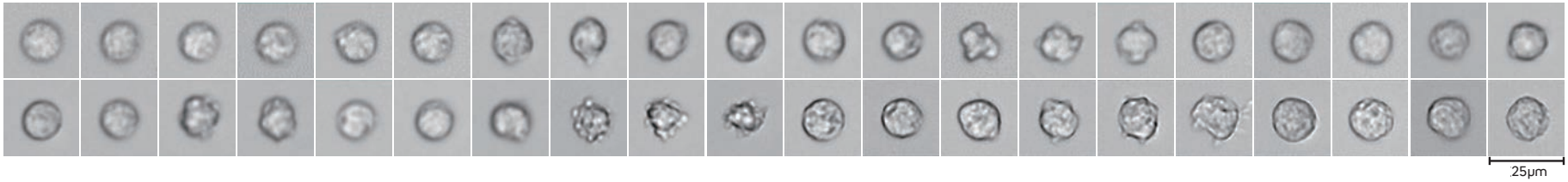
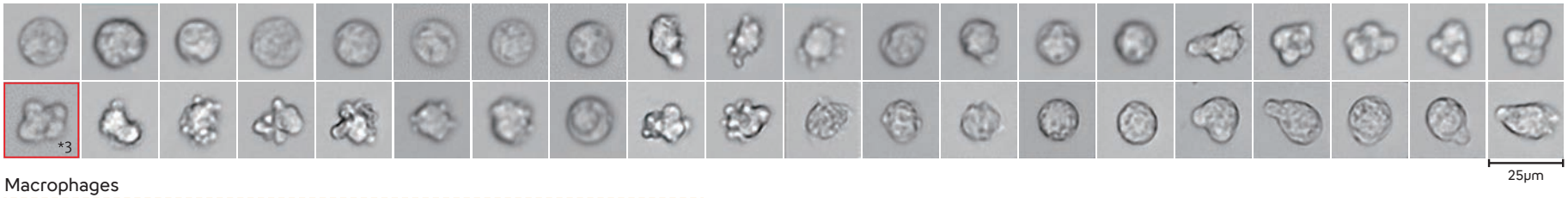
White Blood Cells

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

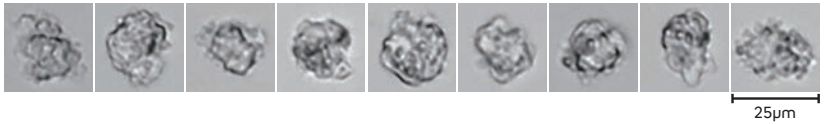
• Class 2 (maximum diameter : 6-10μm)



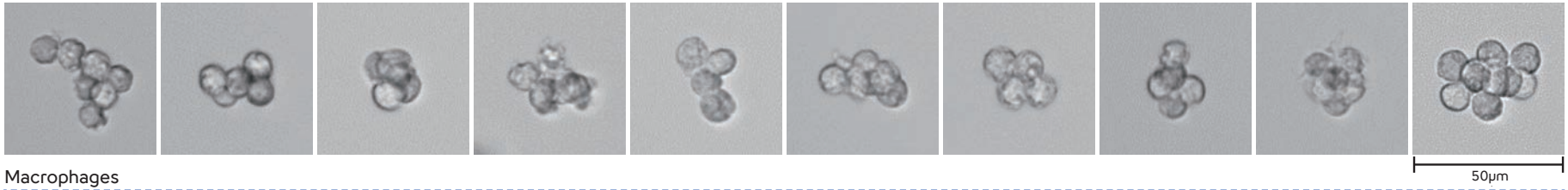
• Class 3 (maximum diameter : 10-16μm)



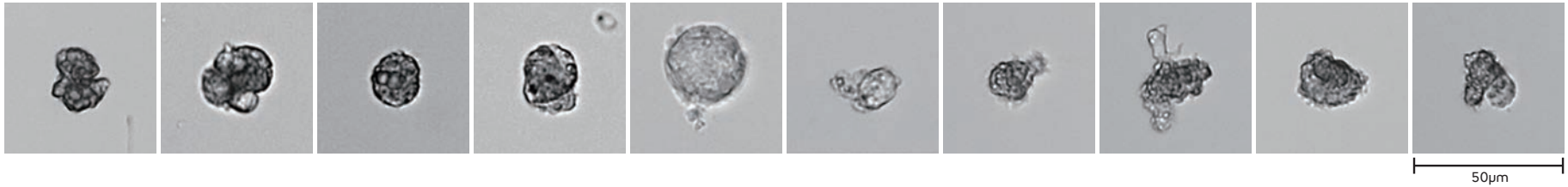
Macrophages



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



Macrophages

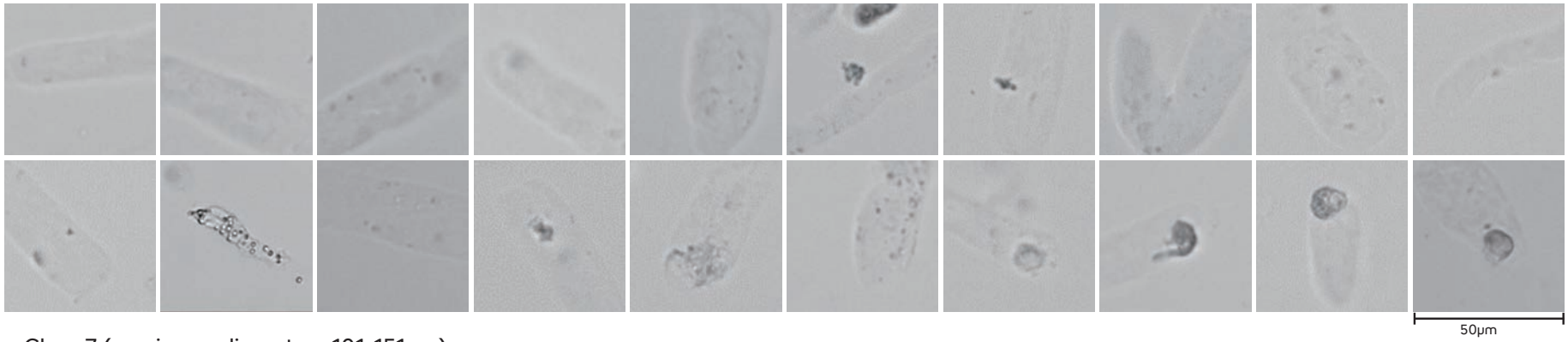


*"Although each cell/particle type will fall predominately within a certain size range, there is no direct link between the size groupings and the cell or particle type".

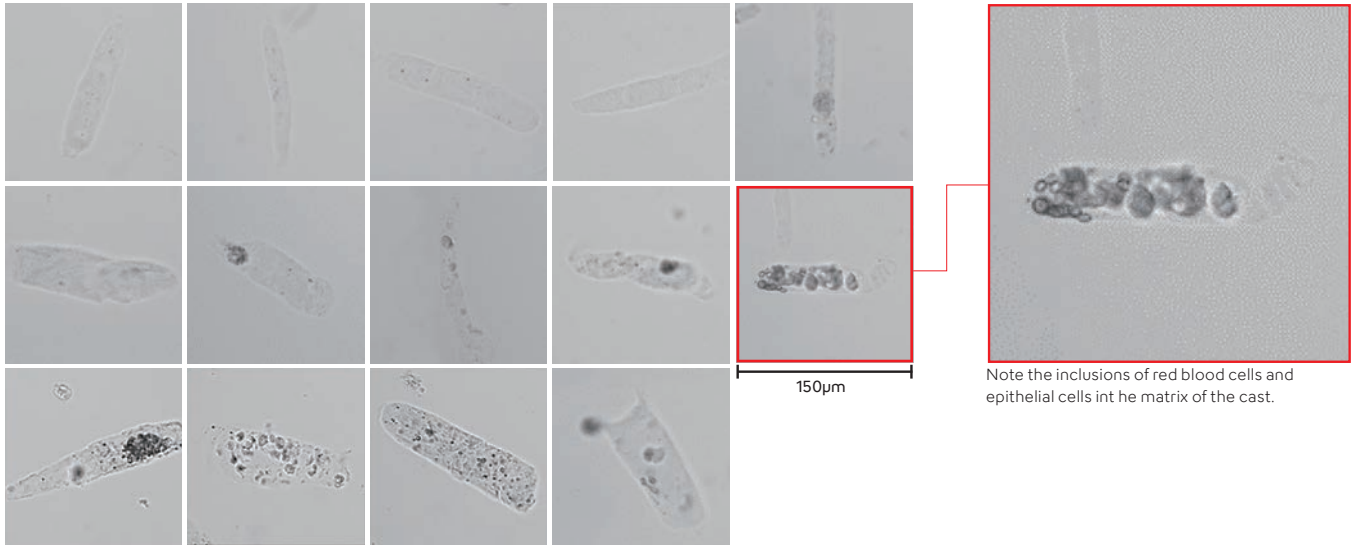
Casts

UD-10 classifies these particles under Classes 4-8

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

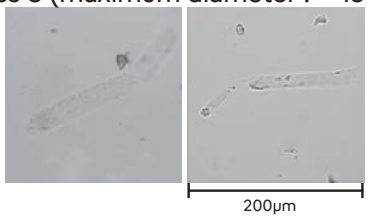


• Class 7 (maximum diameter : 101-151μm)



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

• Class 8 (maximum diameter : > 151μm)



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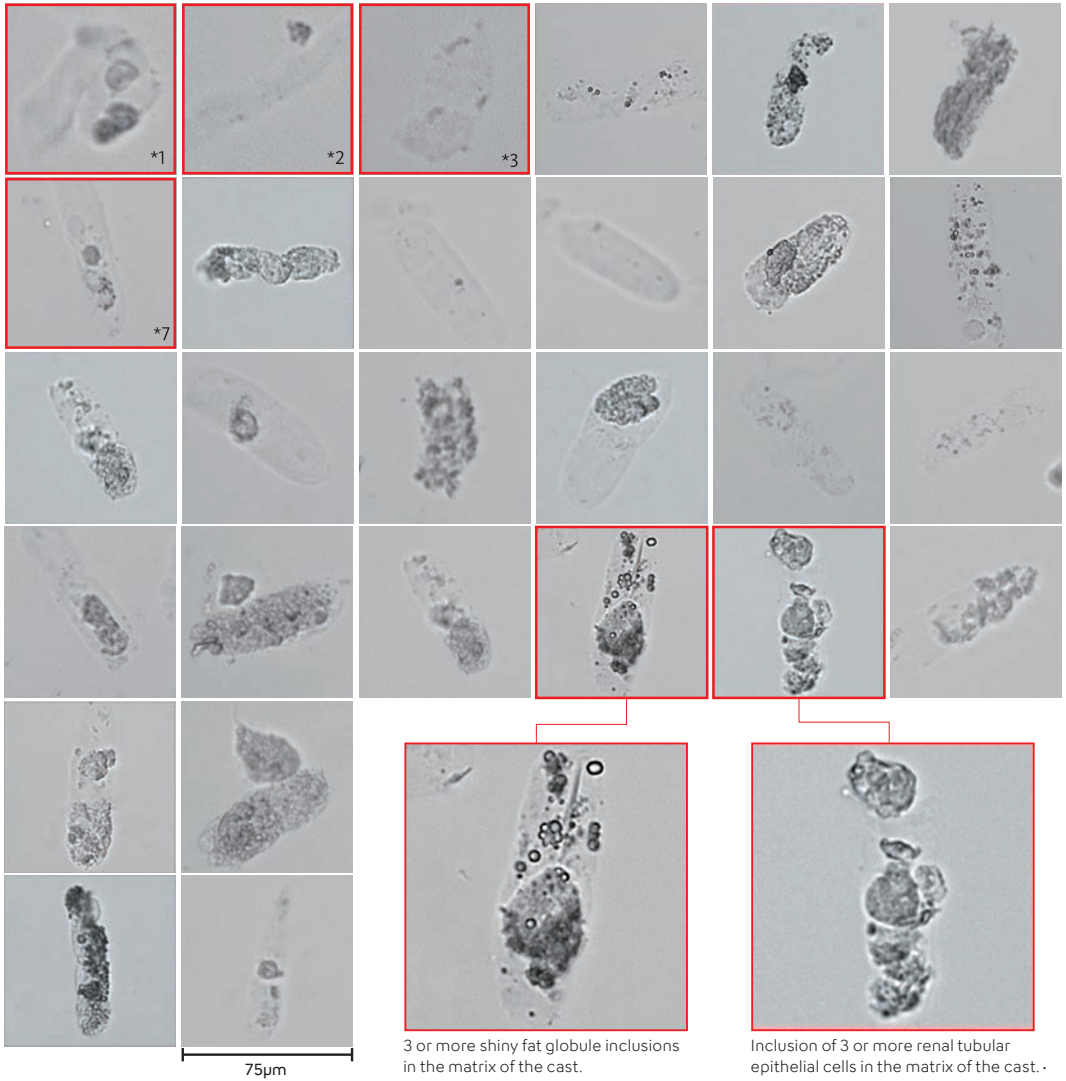
Casts

UD-10 classifies these particles under Classes 4-8

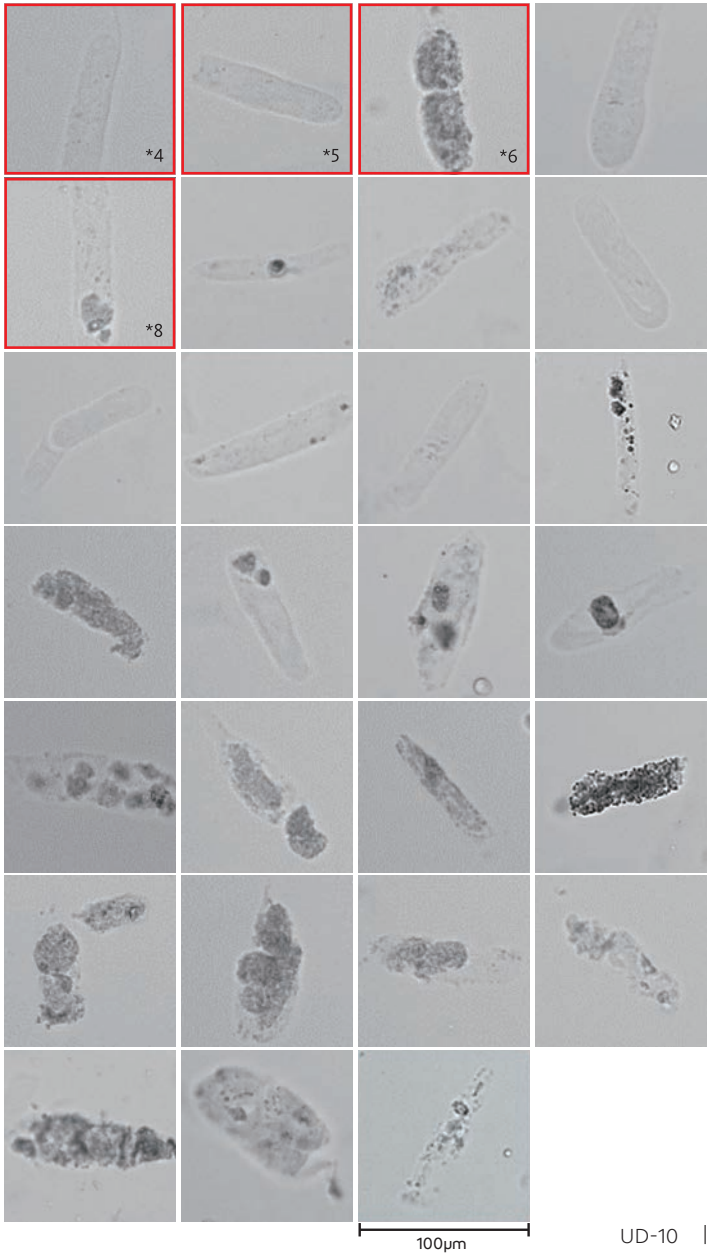
• Class 5 (maximum diameter : 36-71μm)



3 or more shiny fat globule inclusions in the matrix of the cast.

Inclusion of 3 or more renal tubular epithelial cells in the matrix of the cast. ·

• Class 6 (maximum diameter : 36-71μm)



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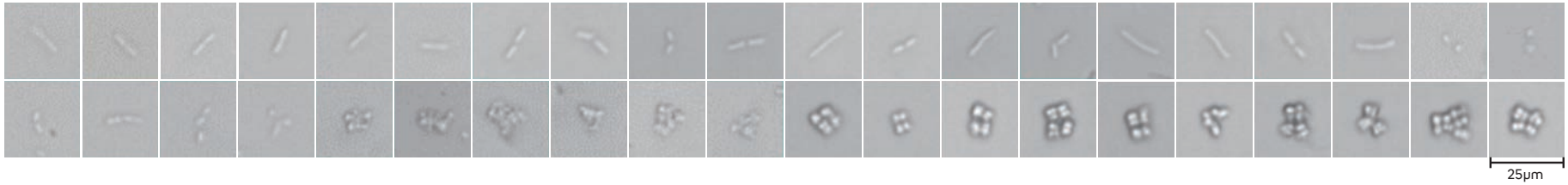
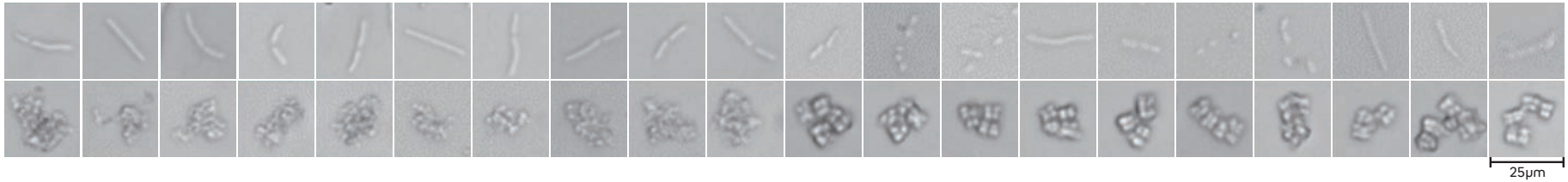
Bacteria

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

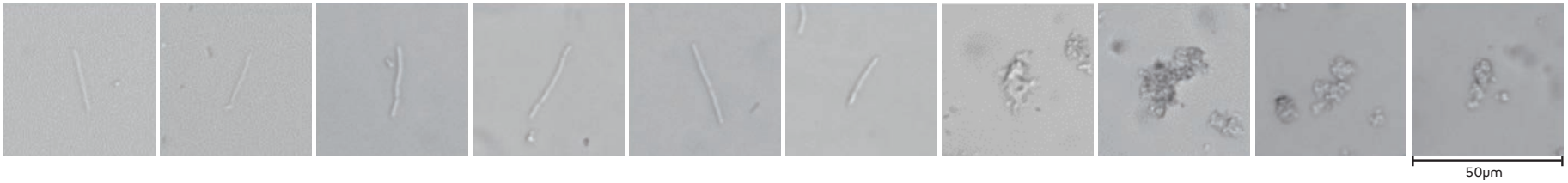
• Class 2 (maximum diameter : 6-10μm)



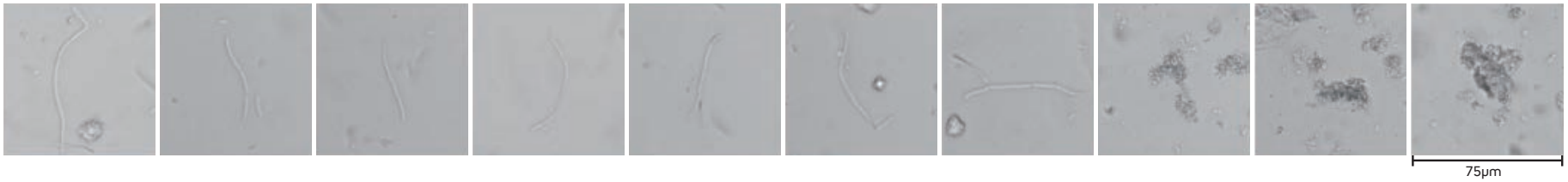
• Class 3 (maximum diameter : 10-16μm)



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



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



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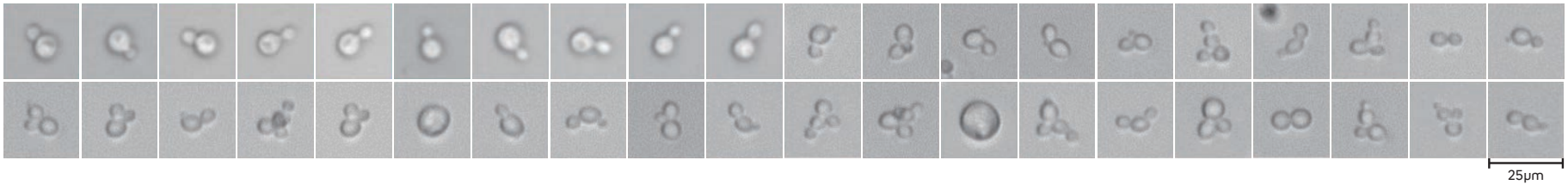
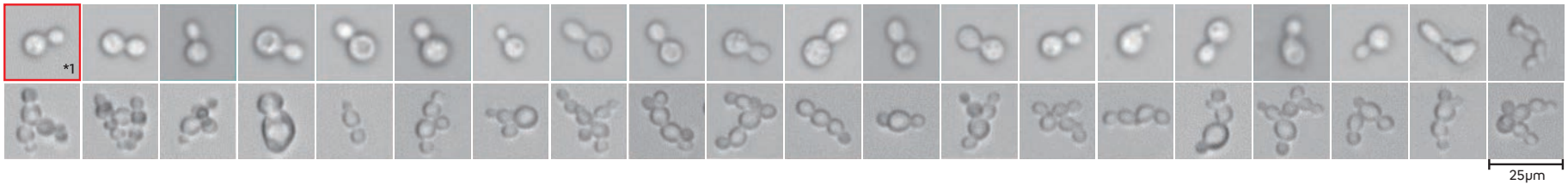
Fungi

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

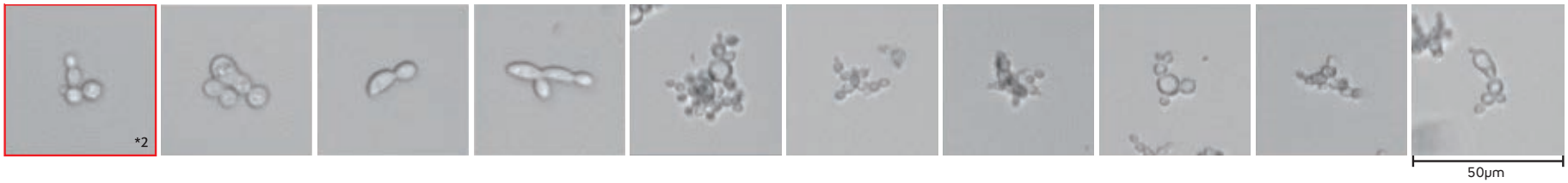
• Class 2 (maximum diameter : 6-10μm)



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



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



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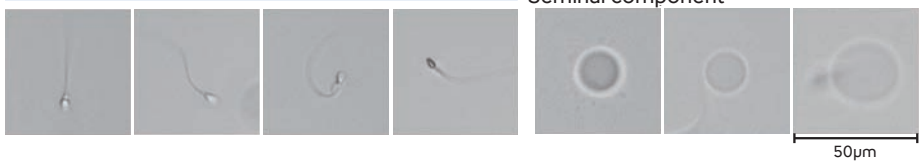
Seminal component

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

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

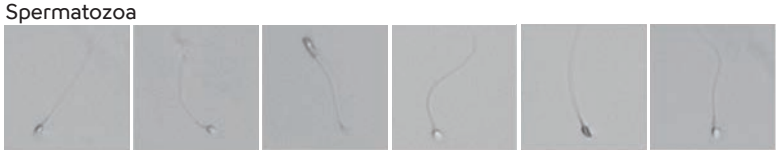
Spermatozoa

Seminal component



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

Spermatozoa

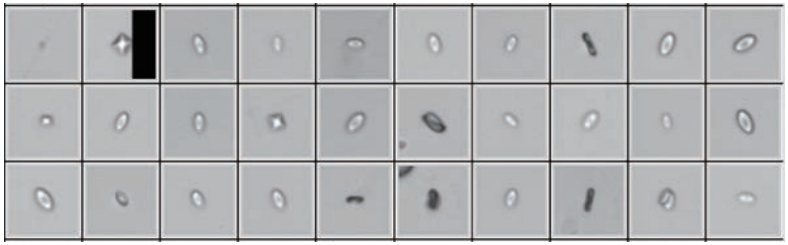


Seminal component

Crystal component

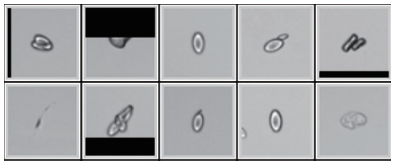
UD-10 classifies crystals from Class 2 to Class 4. It should be checked whether the observation results are almost similar to the ones from UF-5000.

- 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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