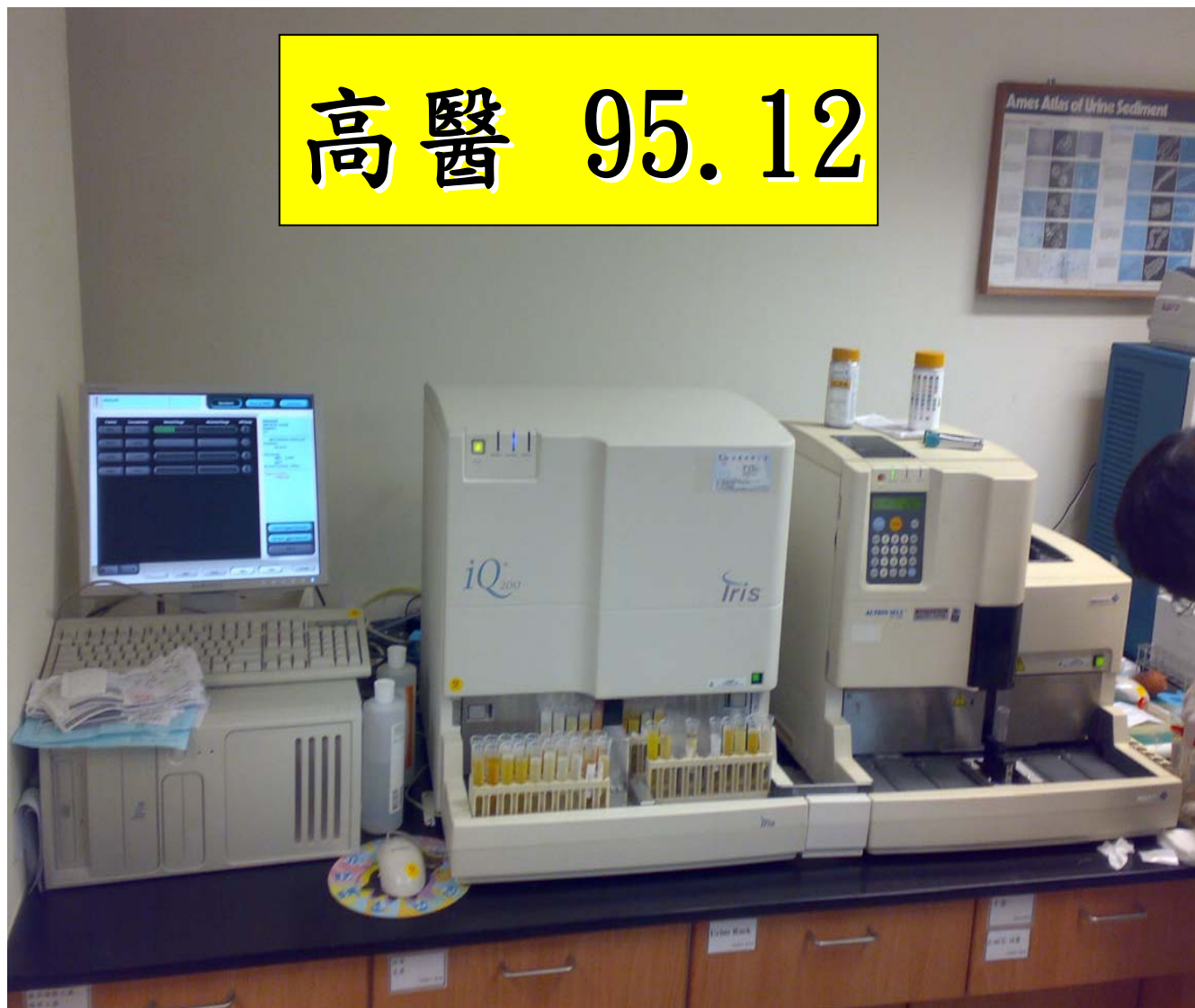


台灣第一家尿液檢驗完全自動化醫院

高醫 95.12



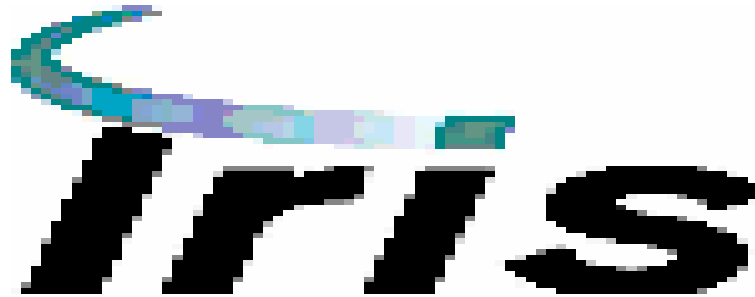


哥倫比亞號太空梭於
2003年 2月1日
重返大氣層時解體
隔熱片或鋁製機殼
破裂所引起
燃燒室過熱爆炸





International Remote Imaging Systems



尿沉渣儀器 自動化研發歷史

Iris



1987 YELLOW IRIS

全世界第一台

Sysmex



1990 UA-1000/2000

1995 UF-50/100



2000 939UDX



2002 IQ200

第一台完全自動化



2006 UF-1000i



2010 AU-4050



Image Processing

Flow Cytometry

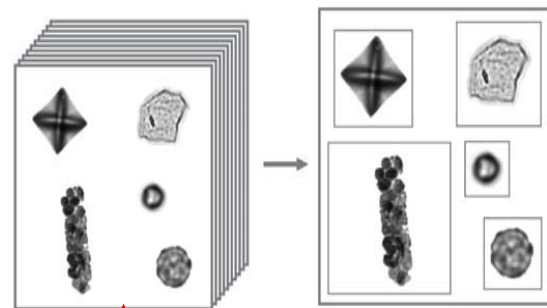
尿液檢驗完全自動化

- 尿沉渣儀器自動化研發歷史
- 儀器原理
- FDA核可報告項目
- CLSI GP16-A3 Guideline
- 報告正確性
- 醫檢學會文章探討

*iQ*TM₂₀₀

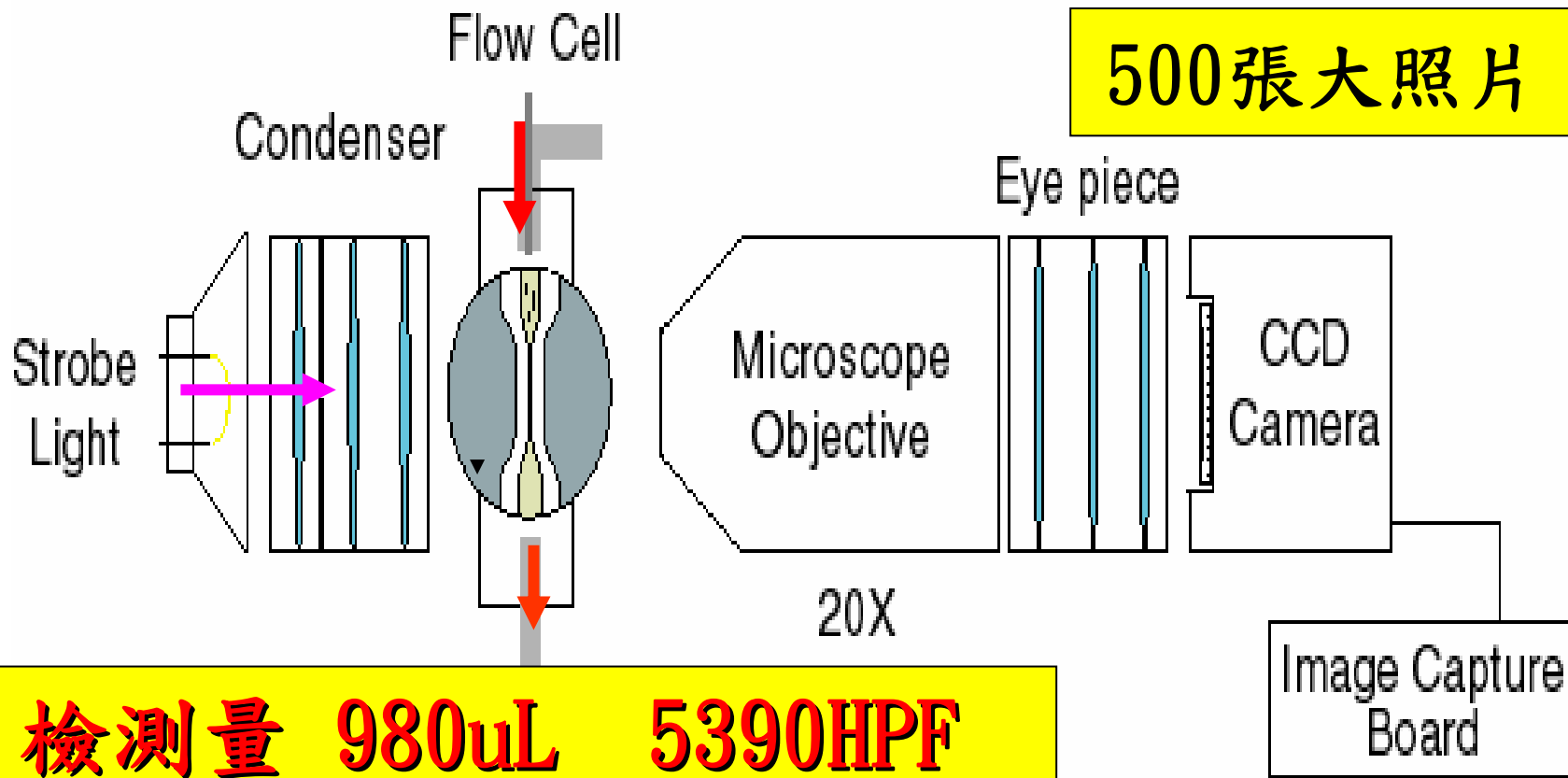
原理

檢體 不需離心
檢體量 3mL
吸取量 980uL



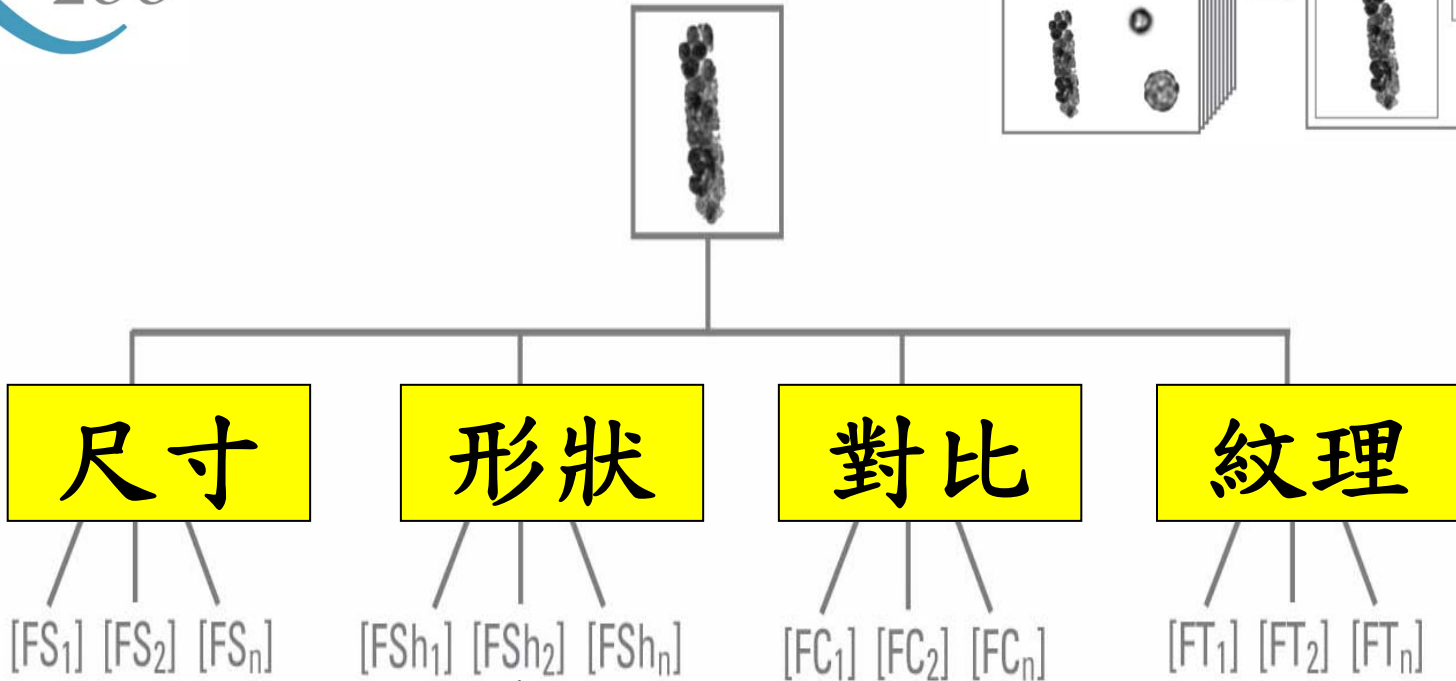
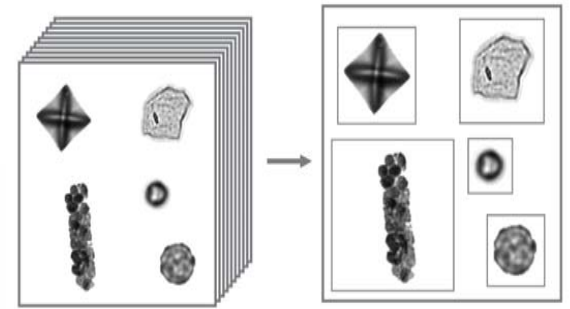
檢體以平面流過flow cell

500張大照片



檢測量 980uL 5390HPF

分析過程

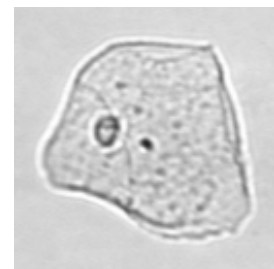
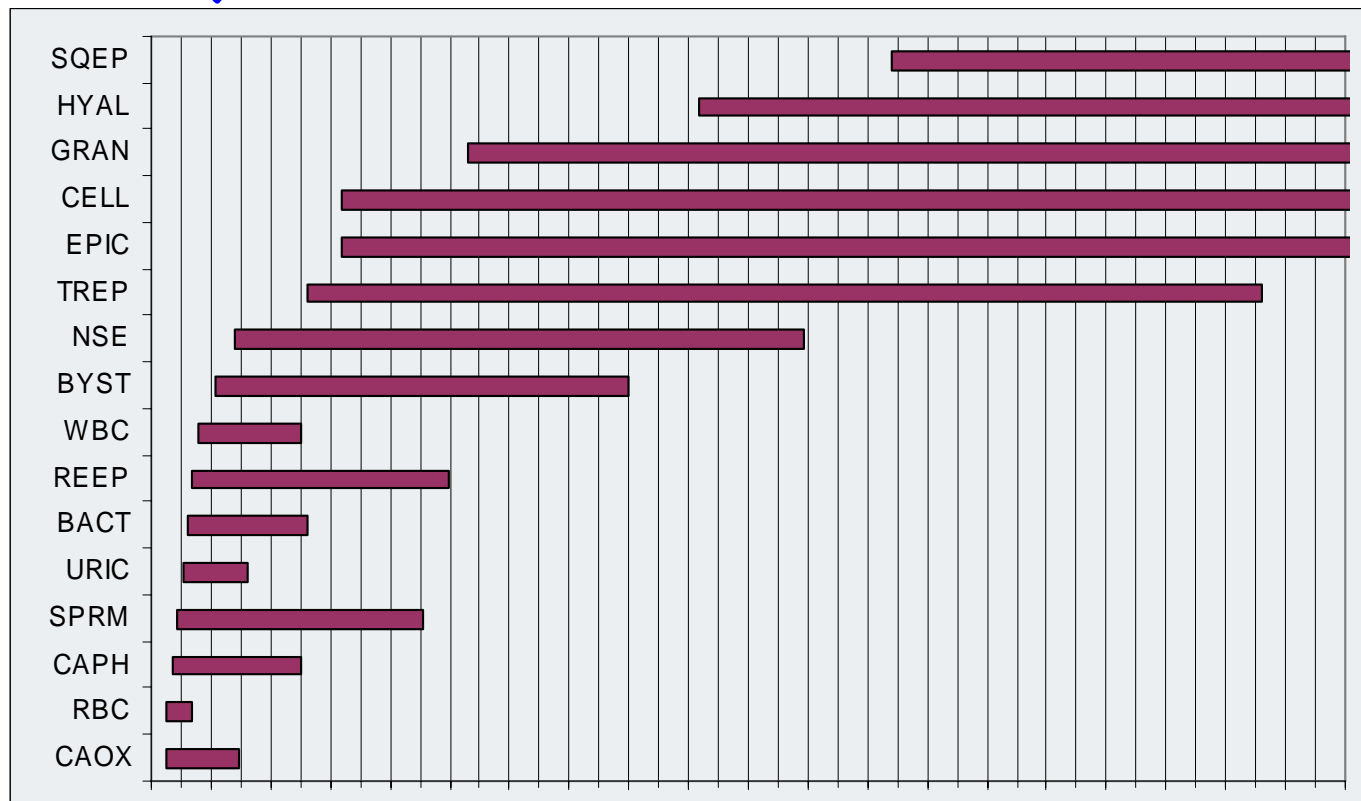


- 每獨立粒子分析明確特徵
- 每特徵以一套數字記錄
- **Auto-Particle Recognition (APR)** 功能為尿液粒狀分類
- 內含 **26,000** 粒子影像

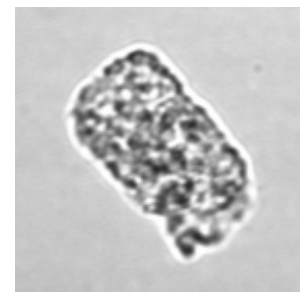
iQTM₂₀₀ 影像與特徵 Images & Features

尺寸:

“大”



GRAN



TREP



RBC



WBC



REEP

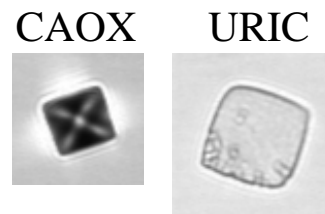
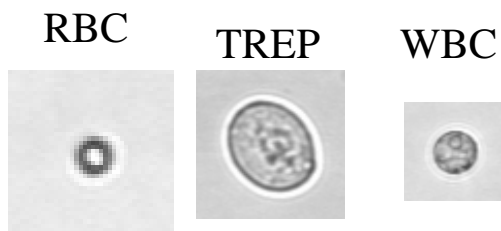


“小”

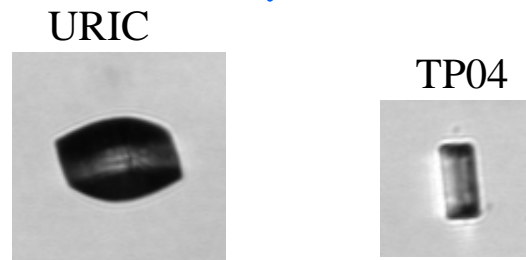
SIZE

*iQ*TM₂₀₀ 影像與特徵 Images & Features

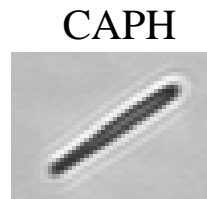
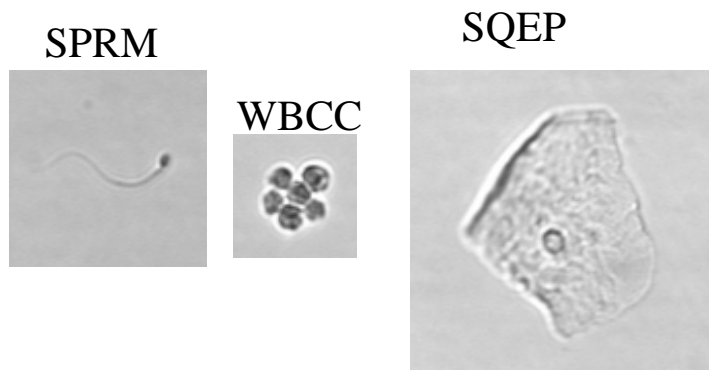
形狀：“圓形” “方形”



“長方形”



“其他”

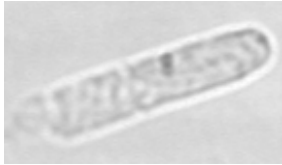




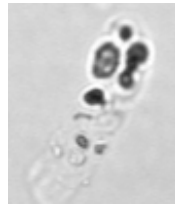
影像與特徵 Images & Features

對比 Contrast:

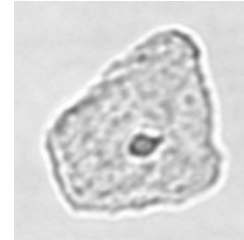
HYAL



CELL



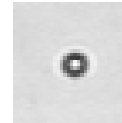
SQEP



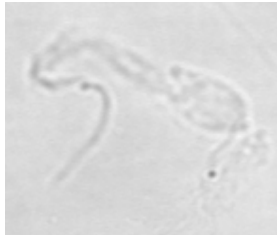
BACT



RBC



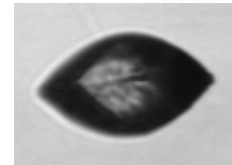
MUCS



WBC



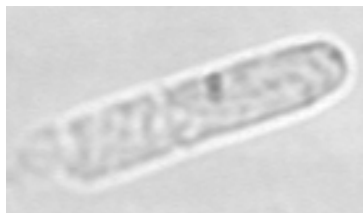
URIC



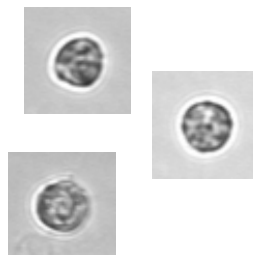
*iQ*TM₂₀₀ 影像與特徵 Images & Features

紋理. 質地 Texture:

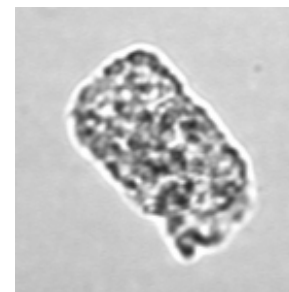
HYAL



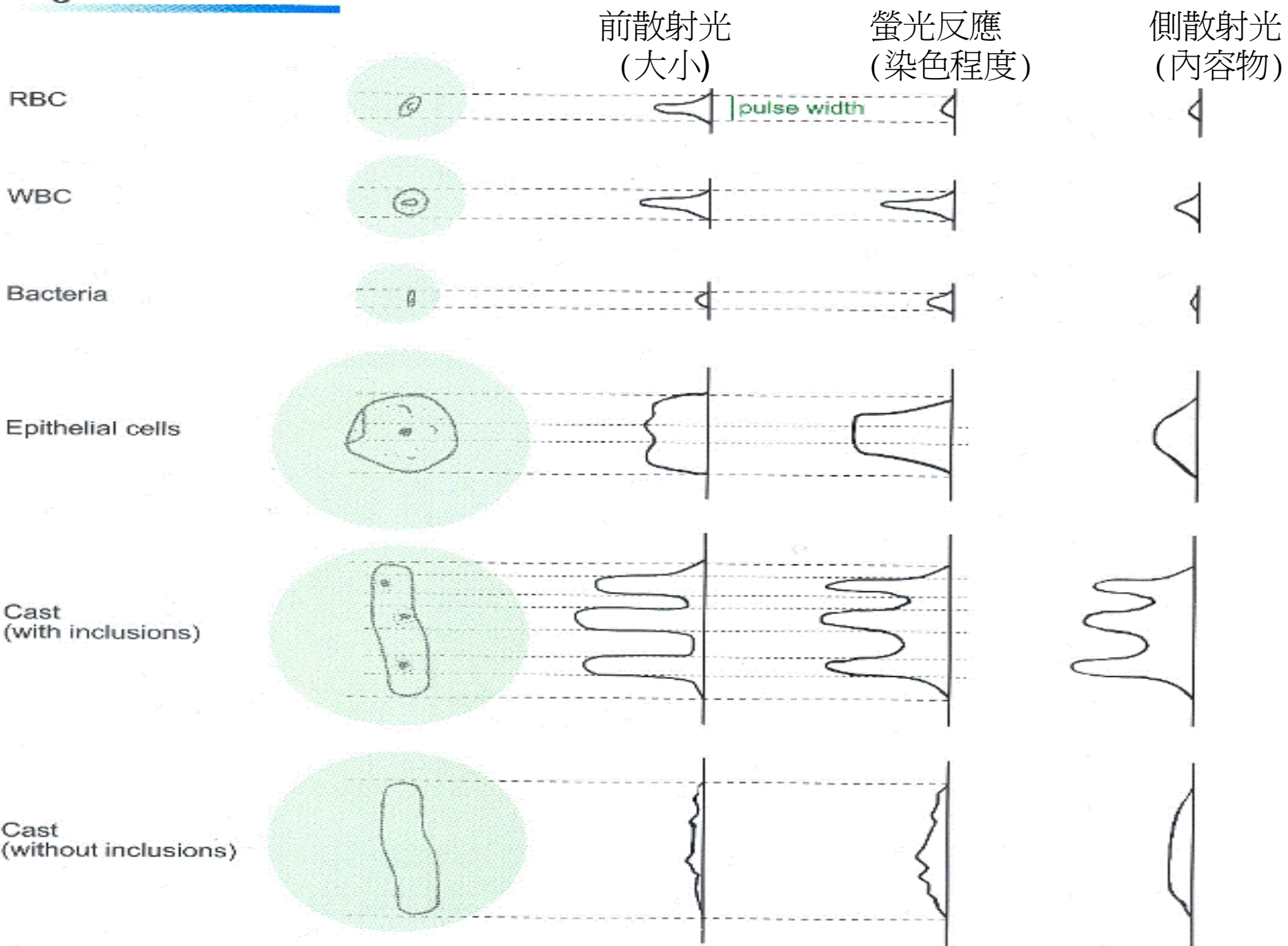
WBC



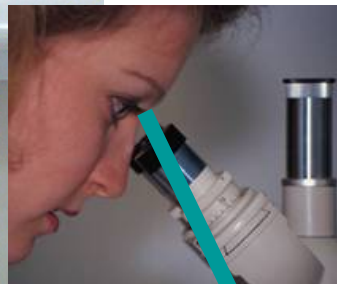
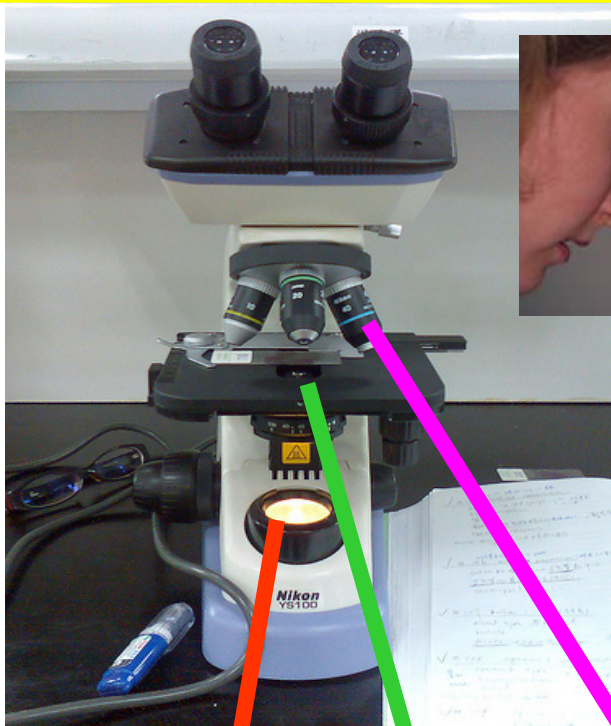
GRAN



Signal wave form



人工鏡檢



Sysmex

UF-1000i

螢光(F1)
DNA / RNA 資訊

RBC/WBC

雷射635nm

兩向色鏡

RBC/CAOX

側散亂光(Ssc)成型物
內容或表面複雜性

原理

人工鏡檢與
IQ200相似

前散亂光(Fsc)
成型物大小

尺寸

Flow Cell

Condenser

Strobe
Light

Eye piece

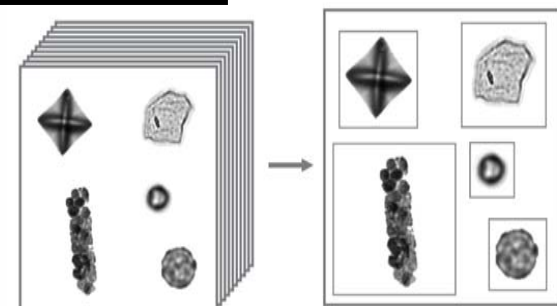
Microscope
Objective

CCD
Camera

20X

Iris
IQ200

Image Capture
Board



FDA核可報告項目

FDA 認證核可報告項目

UF-1000i



RBC
WBC
Epithelial Cells
Casts
Bacteria

Flagging Parameters:



IQ200

RBC
WBC
Epithelial Cells
Hyaline Casts
Bacteria

WBC Clumps

Unclassified Casts

Crystals

Non-Squamous Epithelial Cells

Sperm

Yeast

Mucus

27次分類



紅血球
白血球
透明圓柱體
鱗狀上皮細胞
細菌

酵母菌

結晶體

精子

白血球團

非鱗狀上皮細胞

未分類圓柱體

黏液絲

未分類
人工物

小粒子數

BYST 殖芽
HYST 菌絲

REEP 腎小管
TREP 移行

GRAN 顆粒
CELL 細胞
WAXY 蠟樣
BROAD 寬
RBCT 紅血球
WBCT 白血球
EPIC 上皮細胞
FATC 脂肪
其他類圓柱體

TRCH 陰道滴蟲
FAT 脂肪
RBCC 紅血球團
OVFB 橢圓形脂肪體

CAOX 草酸鈣
UNCX 其他類結晶
TP04 三重磷酸鹽
CAPH 磷酸鈣結晶
LEUC 亮氨酸結晶
AMOR 無定形
URIC 尿酸結晶
CACB 碳酸鈣
CYST 胱氨酸
TYRO 酪氨酸

iQTM₂₀₀

CLSI GP16-A3 Guideline



CLSI GP16-A3 Guideline 規定尿沉渣需報告項目

- Epithelial cells: Squamous Renal tubular Transitional epithelial
- Blood cells: Red blood cells (RBC)
White blood cells (WBC)
- Casts: Hyaline Broad BACT Cellular RBC Fatty Waxy Granular WBC
- Microorganisms: Bacteria Parasites Viral inclusions Yeast
- Crystals: Amorphous Calcium oxalate Cholesterol plates

IQ200符合CLSI GP16-A3 規定

UF-1000i 5項

IQ200 12項 27次分類

台大驗尿揪腎病變 降低洗腎率

自由時報

2009/02/03 04:09

〔記者王昶閔／台北報導〕

1. 台灣洗腎率全球第一，
2. 目前採行的抽血檢驗腎功能方式在檢出異常時，
腎功能往往不到六成，已達三期腎病變，
離尿毒症與洗腎不遠。
3. 台大醫院檢驗醫學部一般檢驗科主任朱蘇煜表示，
這個檢驗方式稱為
4. 「尿沈渣細胞顯微鏡檢查」
5. 腎臟的「腎小管上皮細胞」很敏感，
一旦腎臟受損便容易剝落掉到尿液中
6. 原本洗腎率全球第一的日本，近年積極驗尿後，
雖然慢性腎病發生率因高齡化仍穩坐第一
洗腎率卻快速下降到第四位，換成台灣第一。

**159支樣本比對NSE(非鱗狀上皮細胞)與圓柱體異常時，
對應該病人生化報告，NSE(非鱗狀上皮細胞)、圓柱體
與GLU異常是仁愛醫院159支樣本病人三高**

SAMPLE	BUN	CREA	GLU	CHOL	NSE	CAST
159支	32	28	78	42	81	71
%	20%	17.60%	49%	26.40%	50.90%	44.65%

報告正確性



History of Urine Chemistry Strips

1850-----1920-----1950-----New Era

- Jules Maumene
- 1st qualitative glucose test
- Not popular!

- Fritz Feigl
- Paper test impregnated with chemicals
- Gave a positive or negative result

- **Helen** and Alfred Free
- Developed dry reagents on a stick
- First read visually
- **Became the standard in Laboratory Urinalysis**

Strip歴史



3260份尿化學分析檢測陰性標本的尿沉渣鏡檢結果分析

2008年01月20日 11:01:09 Sunday 作者：周鳳芹 吉林省長春市人民醫院

白血球異常	3.0%
紅血球異常	2.07%
管型異常	0.76% ,
病理性結晶異常	1.17%
寄生蟲異常	0.37%
細菌異常	3.31%
尿沉渣鏡檢	10.68 %

尿化學分析是一個半定量分析方法，由於自身方法學上限制，在檢測結果陰性的標本中存在很多漏檢的情況，因此不能完全替代尿沉渣鏡檢，**過分依賴尿化學自動化分析結果，將會造成很多誤診和漏診。**

Urine from 80 year-old Male

SG	1.015
pH	6.0
Blood	Neg
Protein	Neg
LE	Neg
Nitrite	Neg
Glucose	Neg
Ketone	Neg
Bilirubin	Neg
Urobilinogen	Normal

Microscopic Exam:

■ RBC: 0-2 *per HPF*

■ WBC: 0-2 *per HPF*

■ Many yeast *per HPF*



國外資料

Sponsored by:

MEDTOX Laboratories

St. Paul, MN

Urine *from* 30 year-old Female

SG	1.010
pH	5.5
Blood	Neg
Protein	Neg
LE	Neg
Nitrite	Neg
Glucose	Neg
Ketone	Neg
Bilirubin	Neg
Urobilinogen	Normal



Microscopic Exam:

- RBC: 5-10 *per HPF*
- WBC: 5-10 *per HPF*
- Many SQ epith *per LPF*

Would you expect the
Blood test to be positive?

國外資料

Sponsored by:

MEDTOX Laboratories

St. Paul, MN

UF-1000i & UF100

- Flow cytometry technology
- Data: Scattergrams & histograms
- **Manual microscopic** review required:
 - To verify/confirm findings
 - When specimen is *flagged*
 - *All casts (except hyaline)*
 - *All crystals to identify*
 - *Small round cells*
 - *Yeast*
 - *Mucus*
 - *Sperm*
- Falsely ↑ RBC with crystals, yeast, sperm

國外資料

Sponsored by:

MEDTOX Laboratories

St. Paul, MN

- 實驗室工作人員貪圖方便用幹化學方法代替鏡檢，影響準確性和臨床價值
- 試條也不能檢出管型、上皮細胞、滴蟲、精子、結晶等等。
- 通過鏡檢可發現酪氨酸、亮氨酸結晶等病理性結晶，還可發現某些寄生蟲如滴蟲、，這些都是幹化學法不能識別的，

尿沉渣鏡檢的臨床價值理解逐步提高

對**IQ200**尿沉渣分析儀陽性結果審核的重要性探討

作者：黃國清，王珍桂，李貽廣 發佈時間：2010-3-1 14:21:06

- 方法隨機隨機選取500例**住院患者**的晨尿標本

陽性率	真菌	紅血球	結晶
IQ200	3.8%	13.6%	11.6%
人工鏡檢法	4.0%	13.0%	11.8%

醫檢學會文章探討

以尿液自動分析儀URISYS 2400 之反射比值定量尿液試紙化學檢查

收稿日期：97 年7 月15 日 修稿日期：97 年12 月11 日 接受日期：98 年2 月6 日

240

全自動尿液分析儀URISYS 2400

URYSIS 2400 是全自動的反射光度計，**每小時可檢測400 個尿液試紙**，分析的項目包括pH 值、白血球酯酶、亞硝酸鹽、蛋白質、葡萄糖、酮體、尿膽色素

尿沉渣全自動檢測儀UF-100

一種細胞或顆粒具有不同的導電度，再藉由偵測電阻改變區分尿沉渣中的內容物。利用上述三種原理可以鑑別尿液中不同的物質，包括**紅血球、白血球、上皮細胞、透明圓柱、致病性圓柱、細菌、結晶體、精子及酵母菌等。**

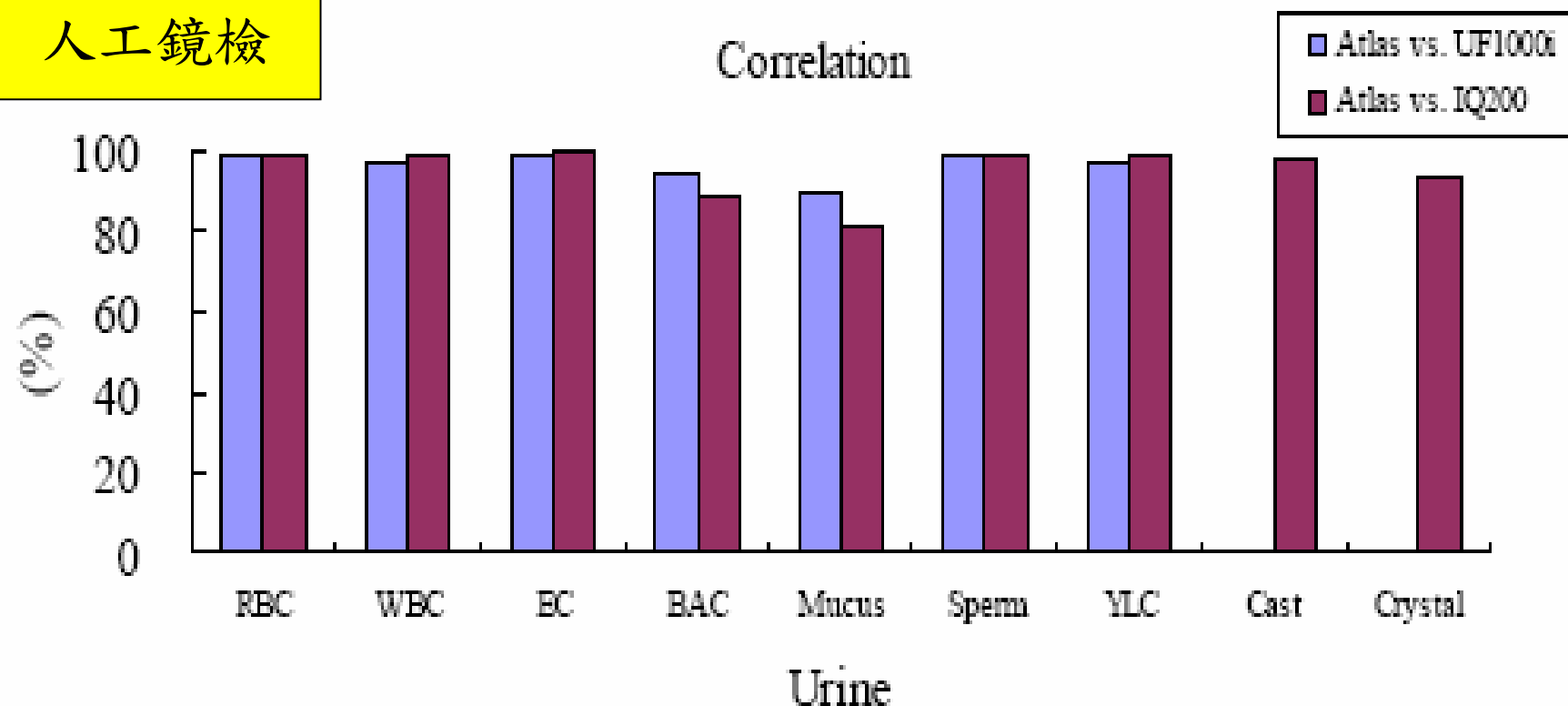
Correlation

Correlation represented as the rate (%) of within 1 grading difference of urinalysis results.

	RBC	WBC	EC	BAC	Mucus	Sperm	YLC	Cast	Crystal
Atlas vs. UF1000i	98.33	97	99.33	94.67	89.76	99.31	96.93	-	-
Atlas vs. IQ200	98.33	99	100.00	88.33	81.57	99.65	99.65	98	93.67

人工鏡檢

Correlation



台北市醫事檢驗師公會

醫檢會刊 2009 年5 月刊

- 美國的各醫院除以CAP 的要求做為準則，並輔以Clinical Laboratory Standards Institute (CLSI) 的尿液分析指南GP-16A3，但顯然於尿沉渣鏡檢能力上有重大缺陷。有鑑於此，因此各醫療院所，對於尿沉渣的檢驗，大多醫賴自動化尿沉渣檢查設備，如Flowcytometry 法 UF-100，Image process法IQ-200 等以迴避法令的限制與要求。

Jason J. Tsai 醫師於2005 年在 American Journal of Kidney Diseases 提出一份研究報告

- 2001-2002 期間，
- UCLA 南加大Davis 校區的附設醫院共收治了26 位最終確診為急性腎衰竭病患

診斷正確率	醫師A	醫師B
醫師A、醫師B、檢驗室	9 成	7 成
檢驗室	2 成	2 成

急性腎衰的症狀，臨床表現

- 1 少尿期（1）三低（**鈉、鈣、pH降低**）三高（**鉀、磷、肌酐升高**）一水腫；
（2）尿毒癥症狀可有噁心、嘔吐、胃腸道出血，呼吸困難、咳嗽、胸痛，高血壓、心力衰竭，嗜睡、神志混亂、震顫和癲癇樣發作，貧血和出血傾向等
（3）感染依感染部位產生相應症狀。
- 2、多尿期：腎功能並未能恢復，血尿素氮和肌酐仍可上升，且易發生脫水、感染、低鉀血症、胃腸道出血等。
- 3、恢復期：**血尿素氮和肌酐接近正常**，尿量逐漸恢復正常腎小球濾過功能多在3-12個月內恢復正常。

尿沉渣鏡檢能力關係？

急性腎衰竭最常見的原因

- 一半以上都是腎臟血流不足引起

例如病人因為嘔吐或腹瀉太厲害，造成脫水，有可能引起急性腎衰竭

衰竭因為心衰竭、嚴重低血壓、肝硬化或毒藥物也可能使腎臟血流不足

- 其他常見的原因為腎小球疾病、間質性腎病或泌尿道阻塞

泌尿道阻塞的原因和位置可以由超音波、X光片找到

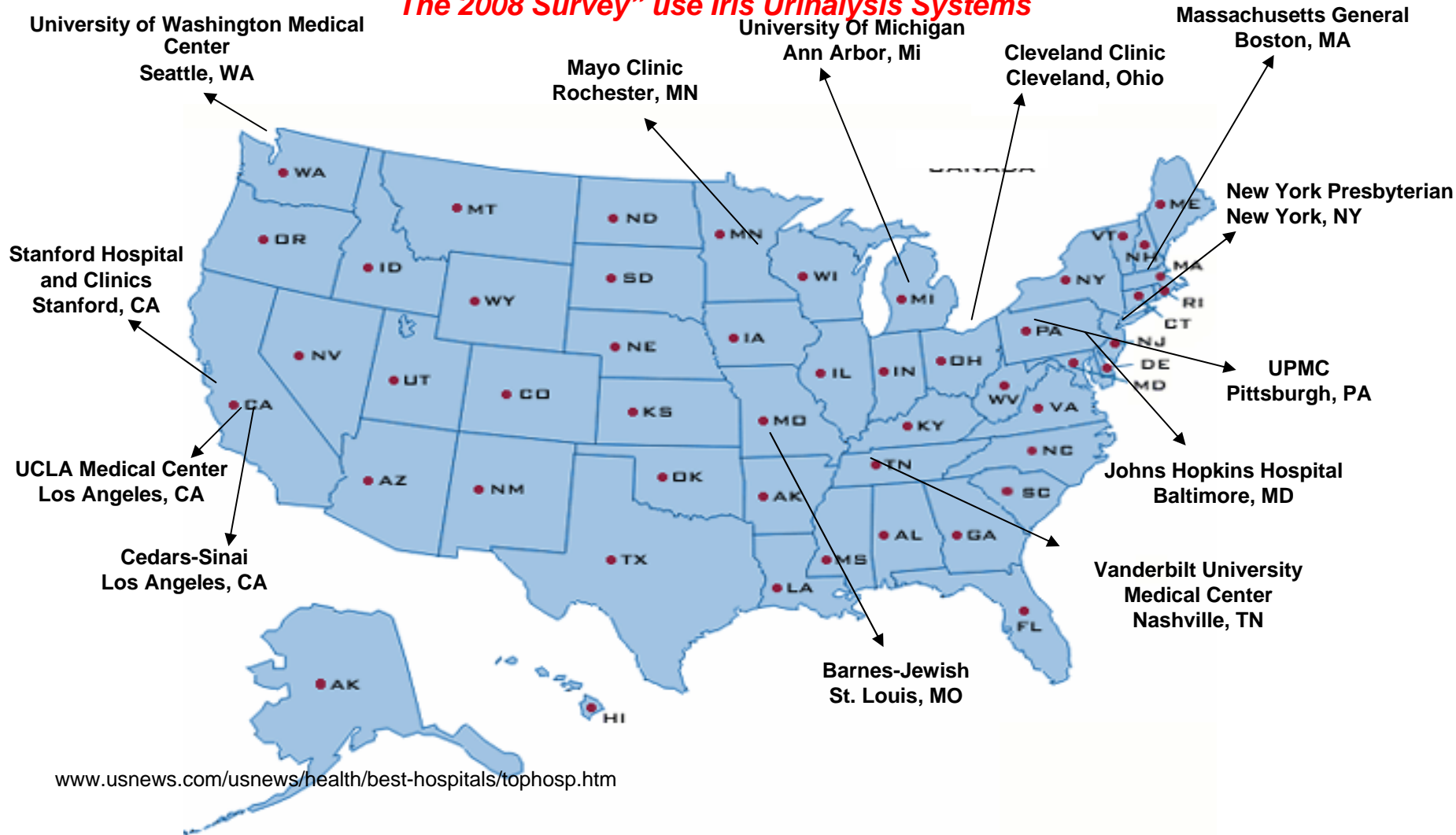
腎小球疾病或腎間質疾病則必須倚賴腎臟切片檢查才能確定。

尿沉渣鏡檢能力關係？

America's Best Hospitals Use Iris Urinalysis Systems

13 of the top 19 Honor Roll Hospitals as rated by "U.S. News and World Report:

The 2008 Survey" use Iris Urinalysis Systems



US News & World Report Best Hospitals 2008

US News and World Report Best Hospitals 2008		
Rank	Hospital	Iris Customer
1	Johns Hopkins Hospital, Baltimore, Md	Yes
2	Mayo Clinic. Rochester, Minn	Yes
3	Ronald Reagan: UCLA Hospital, Los Angeles, Ca	Yes
4	Cleveland Clinic, Cleveland, Ohio	Yes
5	Massachusetts General, Boston, Mass	Yes
6	New York Presbyterian University Hospital of Columbia and Cornell	Yes
7	UCSF, San Fransisco, Ca	No
8	Brigham and Women's Hospital, Boston, Mass	No
9	Duke University Medical Center, Durham, NC	No
10	Hospital of the University of Pennsylvania, Philadelphia, Pa	No
11	University of Washington Medical Center Seattle, Wa	Yes
12	Barnes-Jewish Hosptal/Washington University, St. Louis, Mo	Yes
13	University of Michigan, Ann Arbor, Mi	Yes
14	University of Pittsburgh Medical Center, Pittsburgh, Pa	Yes
15	Vanderbilt Medical Center, Nashville, Tn	Yes
16	Stanford Hospital and Clinics, Stanford, Ca	Yes
17	University of Chicago Medical Center, Chicago, Ill	No
18	Cedar Sinai Medical Center, Los Angeles, Ca	Yes
19	Yale New Haven Hospital, New Haven, Conn	No

台北市醫事檢驗師公會

醫檢會刊 **2009** 年**5** 月刊

- 試紙廠商遵守協議，使用相同的判讀標準，尿蛋白價數(1+)即代表尿蛋白濃度為
- 30 mg/dL。
- 日本在慢性腎病的防治方法上，主要是以尿沉渣鏡檢為主，以平價的10 項尿液標準檢驗試紙為輔

紅血球
白血球
透明圓柱體
鱗狀上皮細胞
細菌

酵母菌

結晶體

精子

白血球團

非鱗狀上皮細胞

未分類圓柱體

黏液絲

未分類
人工物

小粒子數

BYST 殖芽
HYST 菌絲

REEP 腎小管
TREP 移行

GRAN 顆粒
CELL 細胞
WAXY 蠟樣
BROAD 寬
RBCT 紅血球
WBCT 白血球
EPIC 上皮細胞
FATC 脂肪
其他類圓柱體

TRCH 陰道滴蟲
FAT 脂肪
RBCC 紅血球團
OVFB 橢圓形脂肪體

CAOX 草酸鈣
UNCX 其他類結晶
TP04 三重磷酸鹽
CAPH 磷酸鈣結晶
LEUC 亮氨酸結晶
AMOR 無定形
URIC 尿酸結晶
CACB 碳酸鈣
CYST 胱氨酸
TYRO 酪氨酸

iQTM₂₀₀

OFF

Specimens

Found List (1974)

Instrument

Operator: [RIS]

TRCH

MANY



WBC

BACT

RBC

SQEP

Crystals...

WBCC

Casts...

NSE

Others...

ART

Info...

REEP

TREP

HYST

BYST

MUCS

SPRM

RBCC

TRCH

OVFB

FAT

Results

Print Screen

TRCH

STANDBY

STANDBY

Specimens

Work List (37)

Instrument

Operator: user

WBC

316 /uL



WBC

BACT

RBC

SQEP

Crystals...

WBCC

Casts...

NSE

Others...

ART

Info...

15320066

2009-03-20 13:39:33

4/1

1:1

All Small Particles: 13881/uL

H	BIL	Negative
H	URO	4.0 mg/dL
H	KET	10 mg/dL
	ASA	Negative
	GLU	Negative
H	PRO	Negative
	BLD	Negative
	PH	6
	NIT	Negative
H	LEU	500 WBCs/uL
	SPGR	1.014
	CLA	Cloudy
	COL	Amber

WBC 內有TRCH圖片

STANDBY

STANDBY

Specimens

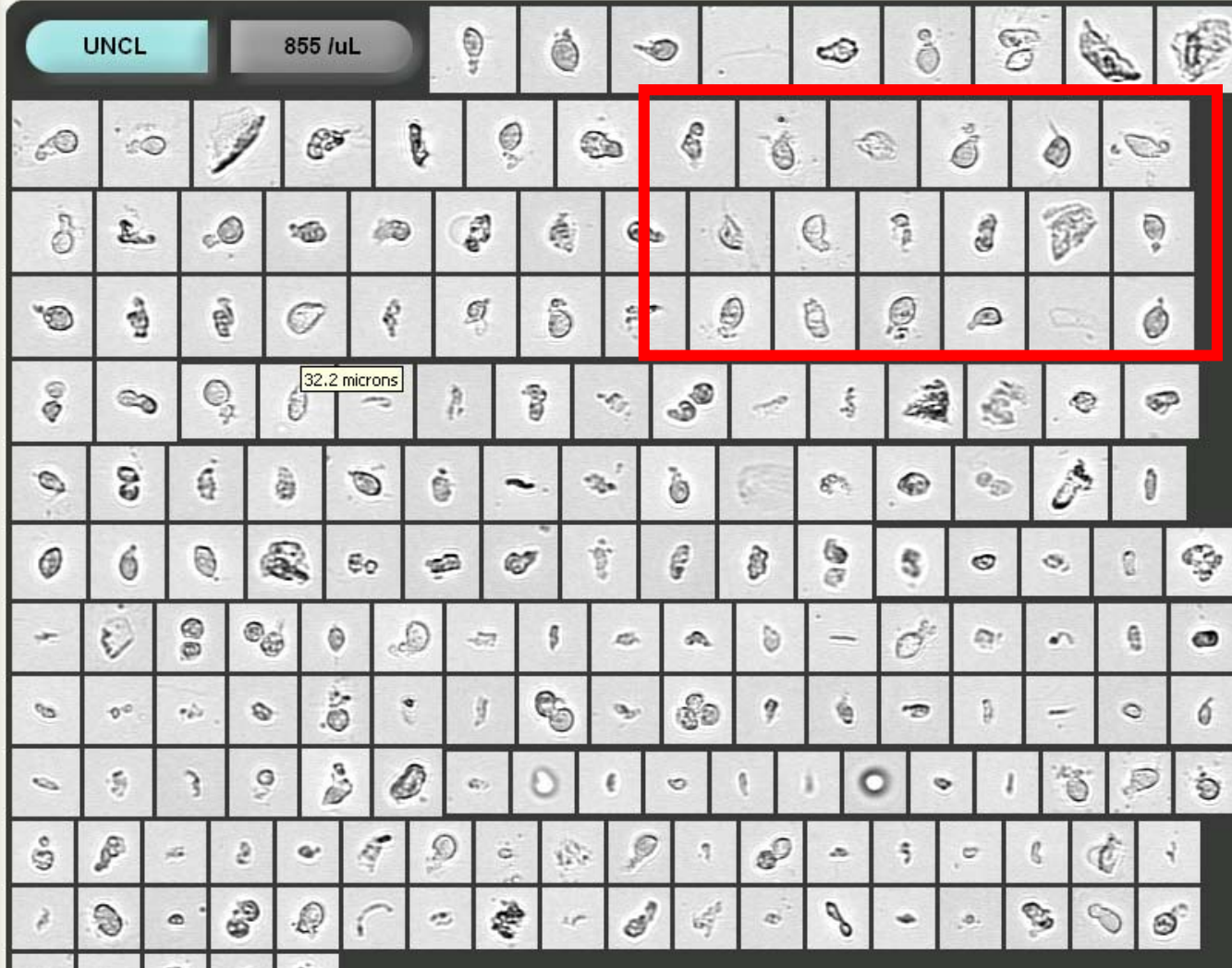
Work List (37)

Instrument

Operator: user

UNCL

855 /uL



WBC

BACT

RBC

SQEP

Crystals...

WBCC

Casts...

NSE

Others...

ART

Info...

15320066
2009-03-20 13:39:33
4/1
1:1

All Small Particles: 13881/uL

	BIL	Negative
H	URO	4.0 mg/dL
H	KET	10 mg/dL
	ASA	Negative
	GLU	Negative
H	PRO	Negative
	BLD	Negative
	PH	6
	NIT	Negative
H	LEU	500 WBCs/uL
	SPGR	1.014
	CLA	Cloudy
	COL	Amber

UNCL 內有TRCH圖片



注意TRCH鞭毛陰影

MEASURE

STANDBY

Specimens

Found List (54)

Instrument

Operator: user

WBC

12 /HPF



WBC

BACT

RBC

DRBC

SQEP

Crystals...

WBCC

Casts...

NSE

Others...

ART

Info...

<<Released>>

2032930016

2010-10-20 09:58:08

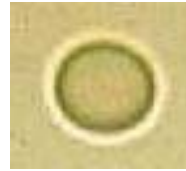
13/6(14599)

1:1

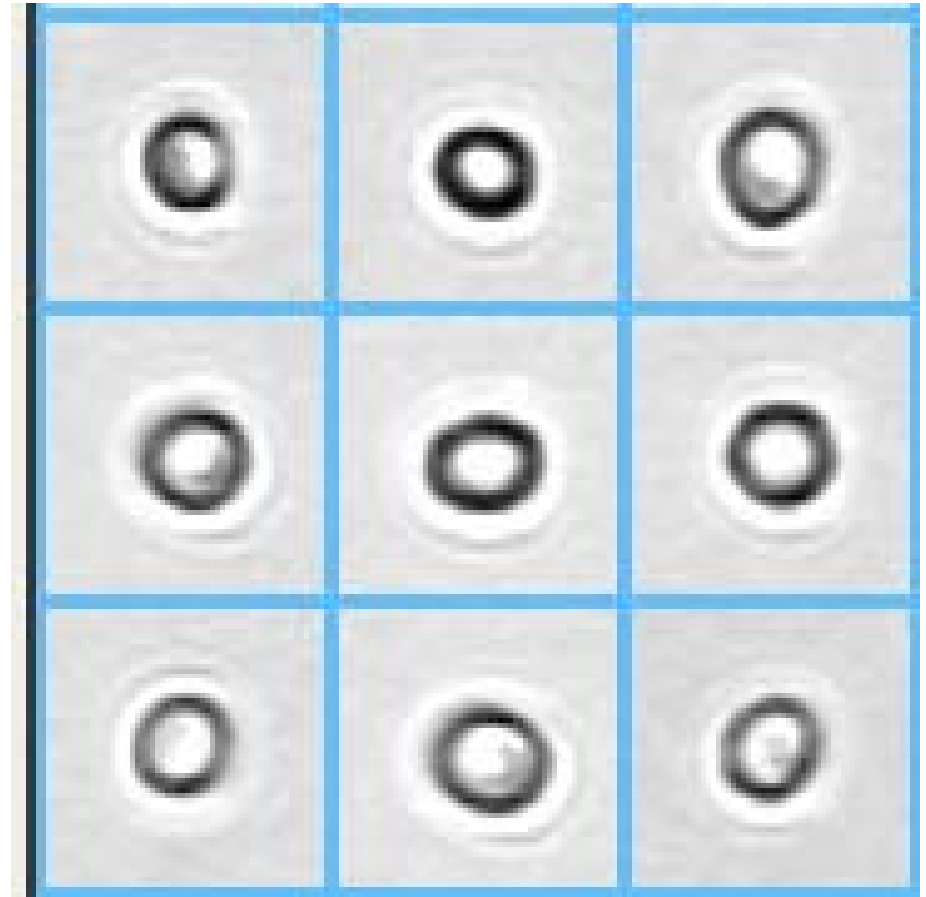
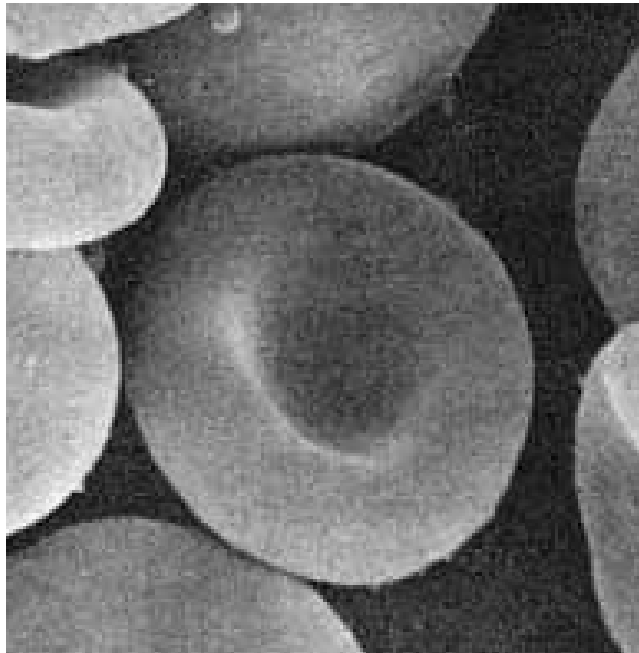
All Small Particles: 7062/uL

GLU	-
H PRO	50 mg/dL
H BIL	1.0 mg/dL
H URO	2.0 mg/dL
PH	6
BLD	-
KET	-
HIT	-
LEU	-
CLA	Cloudy
SPGR	1.029
COL	Light-Amber
ASA	40 mg/dL

死亡Trichomonas



紅血球

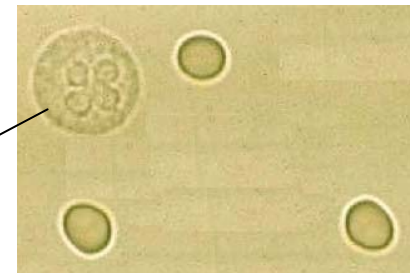
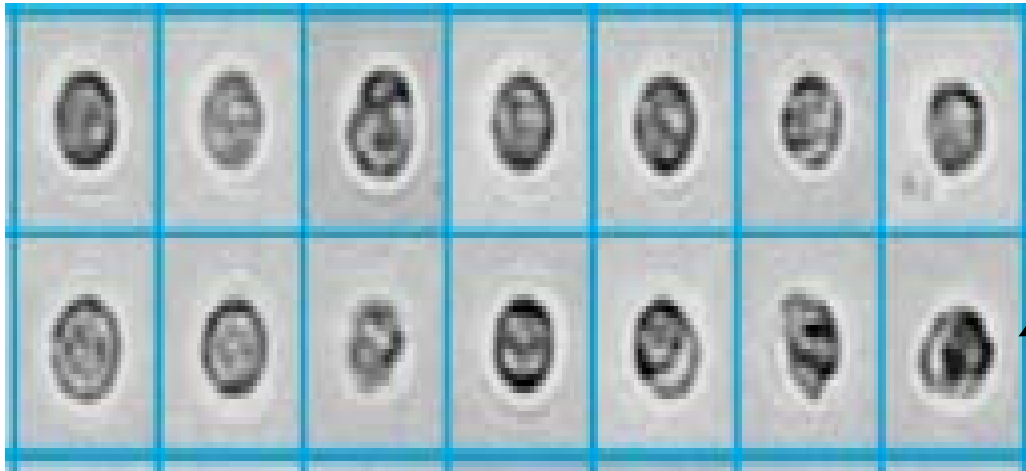




白血球

White Blood Cells
WBC

人工鏡檢
RBC / WBC

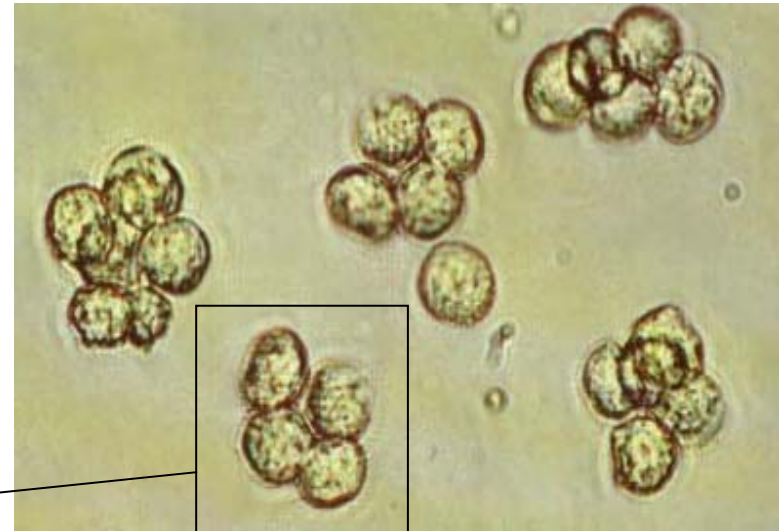
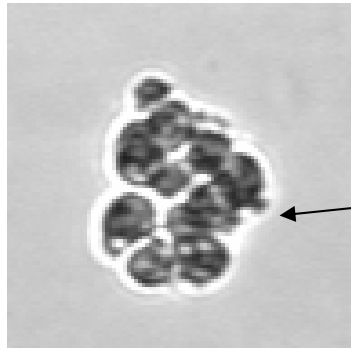
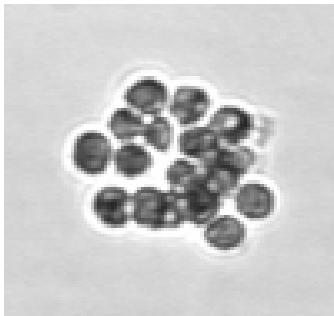
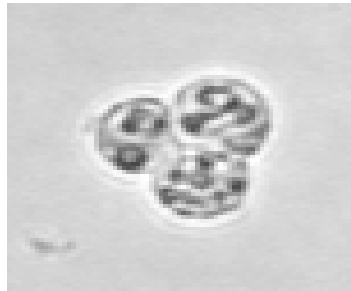
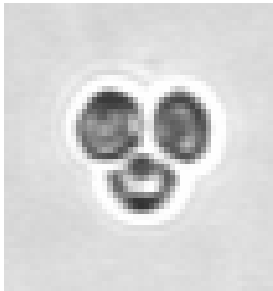




白血球團

White Blood Cells Clumps
WBCC

人工鏡檢
白血球團

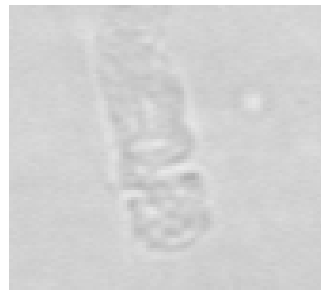




透明圓柱體

Hyaline Casts
HYAL

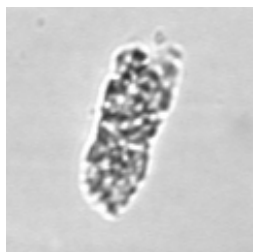
人工鏡檢
HYAL



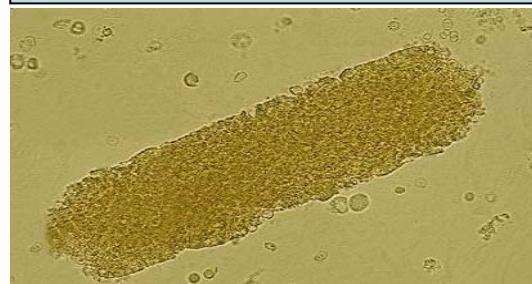
非透明圓柱體 Non-Hyaline Casts

iQTM₂₀₀

顆粒 Granular
(GRAN)

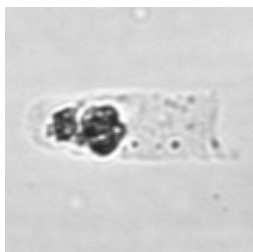


人工鏡檢 GRAN CAST



iQTM₂₀₀

細胞 Cellular
(CELL)



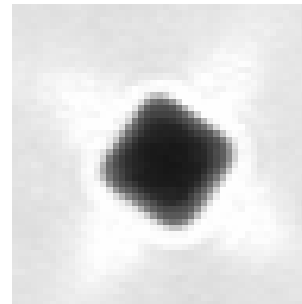
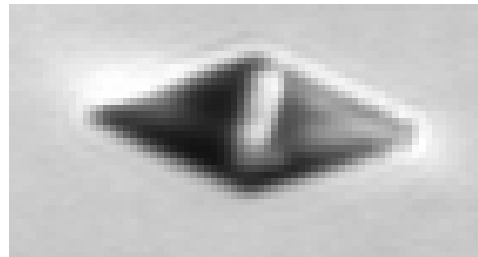
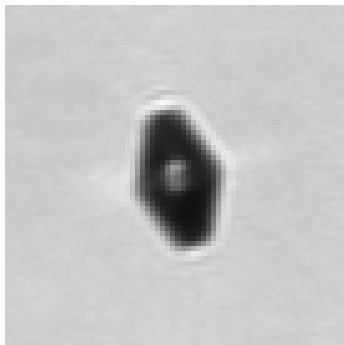
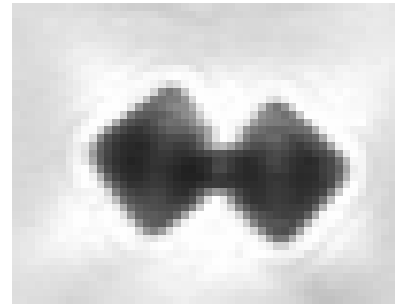
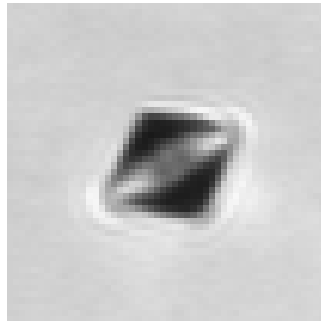
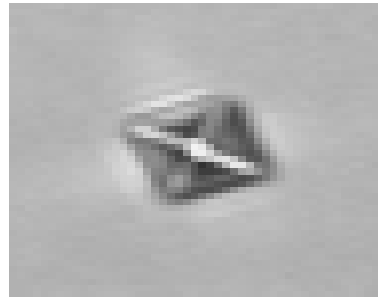
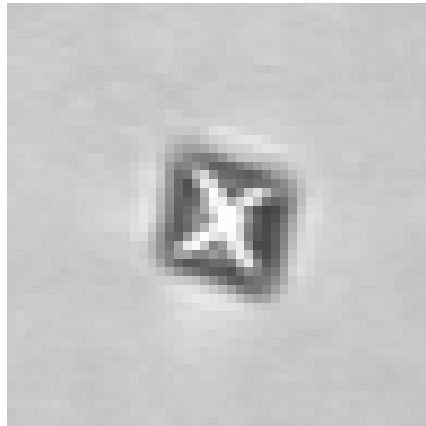
人工鏡檢 CELL CAST



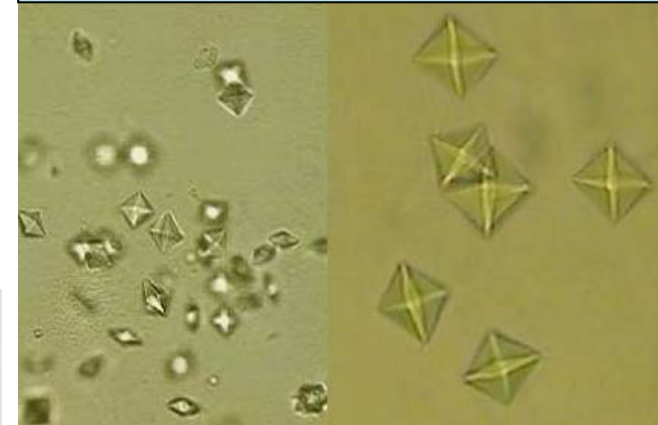
結晶體 Crystals

草酸鈣

Calcium Oxalate
(CAOX)



人工鏡檢
CAOX

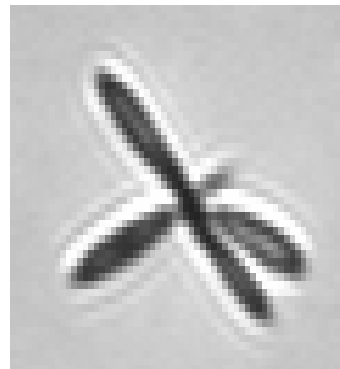
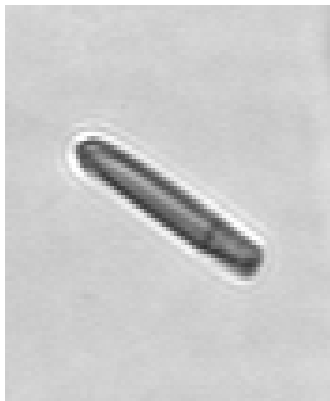
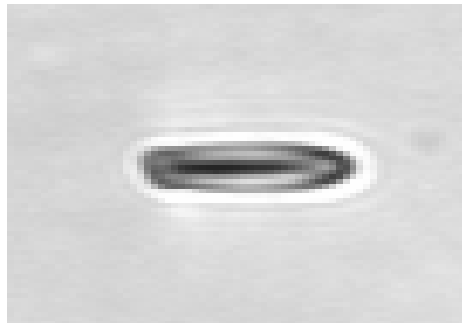
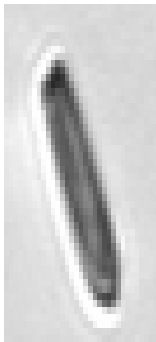
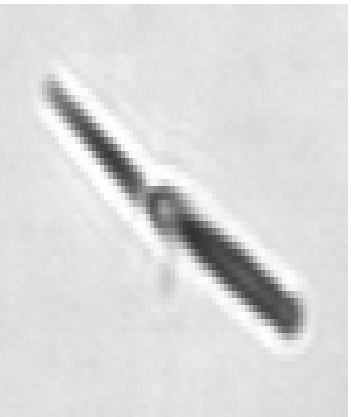


iQTM₂₀₀

結晶體 Crystals

磷酸鈣

Calcium Phosphate
CAPH



人工鏡檢
CAPH



結晶體 Crystals

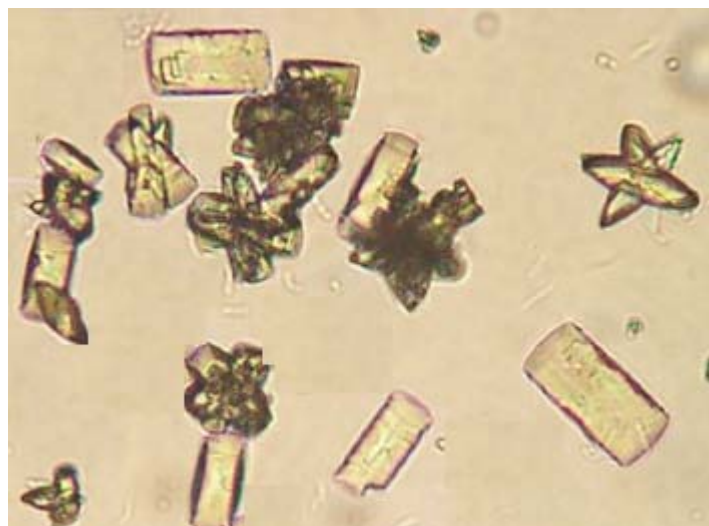
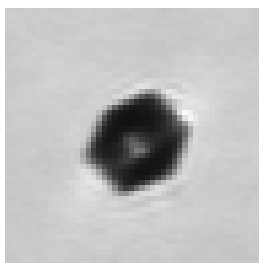
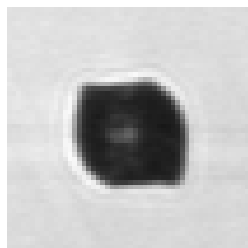
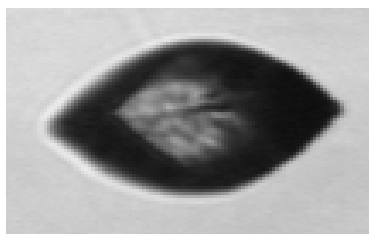
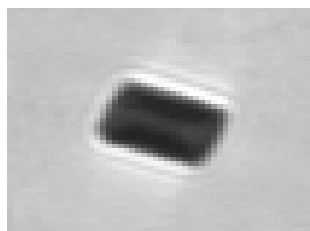
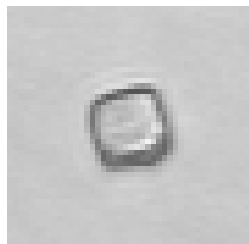
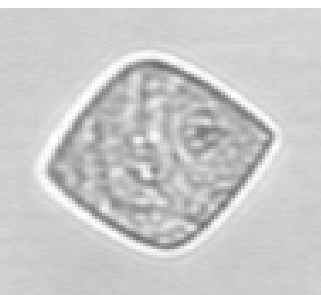
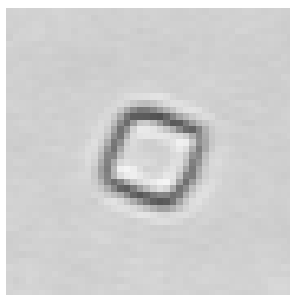
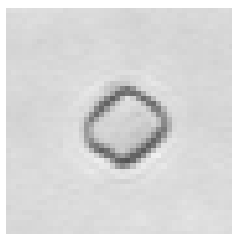
iQTM₂₀₀

尿酸

Uric Acid

URIC

人工鏡檢
URIC



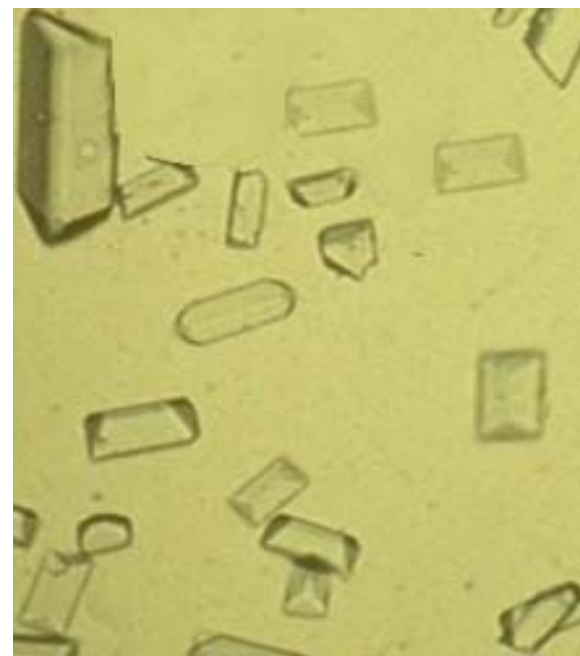
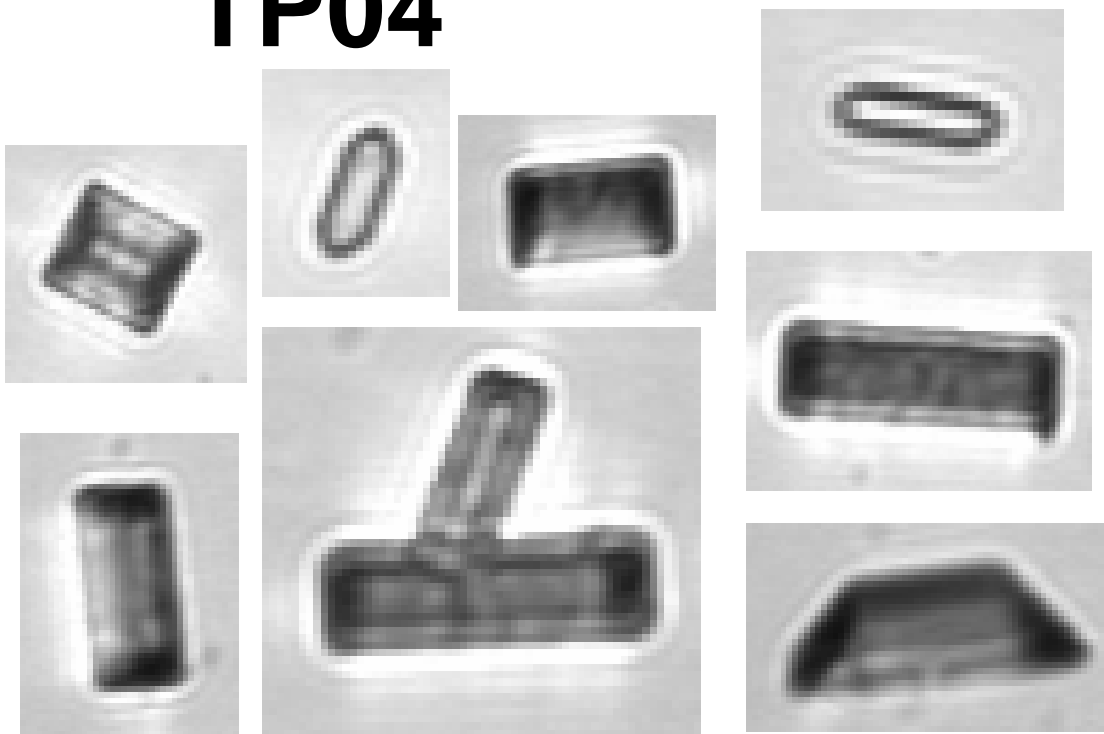
iQTM₂₀₀

結晶體 Crystals

三重磷酸鹽

**Triple Phosphate
TP04**

人工鏡檢
TP04



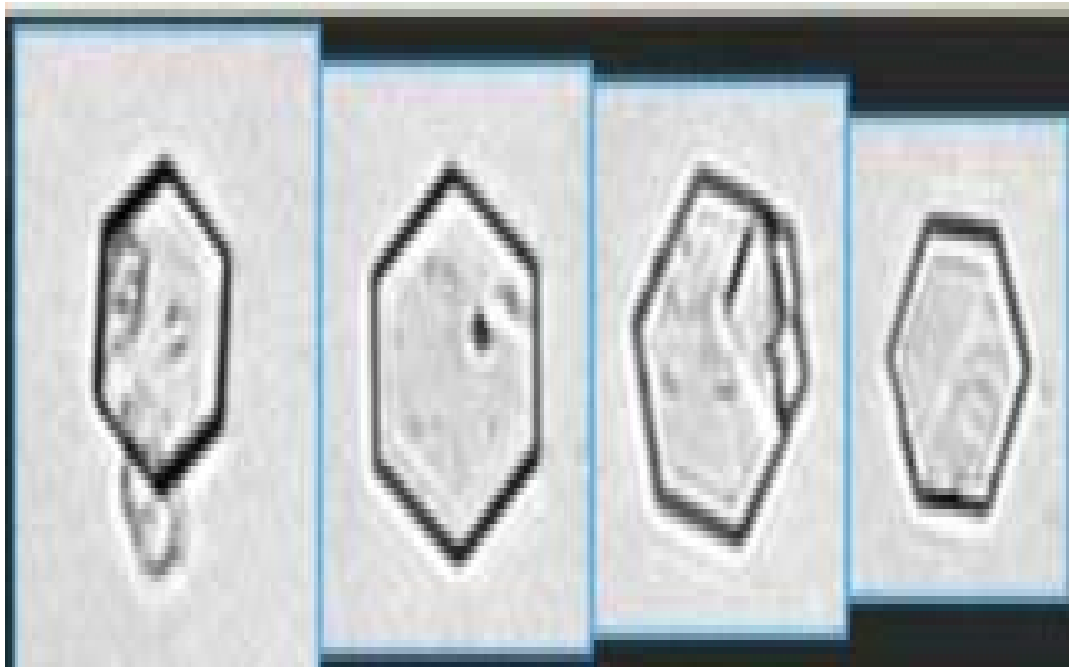
結晶體 Crystals

iQTM₂₀₀

胱氨酸

Cystine
CYST

人工鏡檢
Cystine

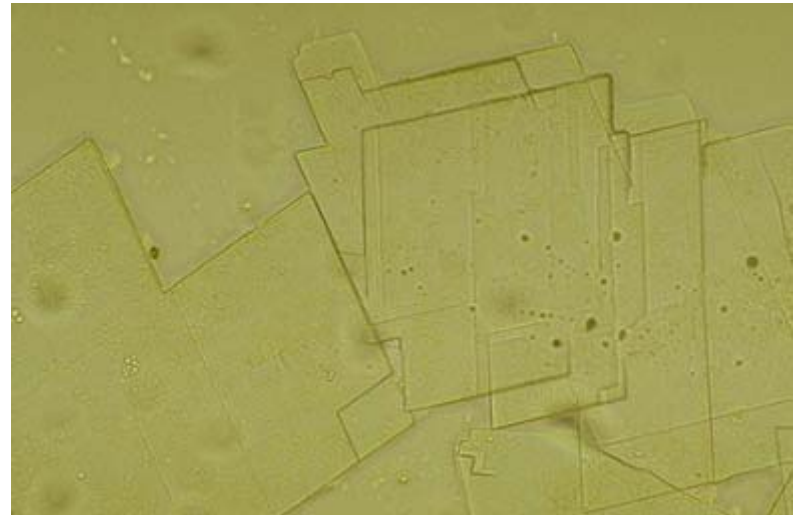


膽固醇結晶 Cholesterol Crystal

iQTM₂₀₀



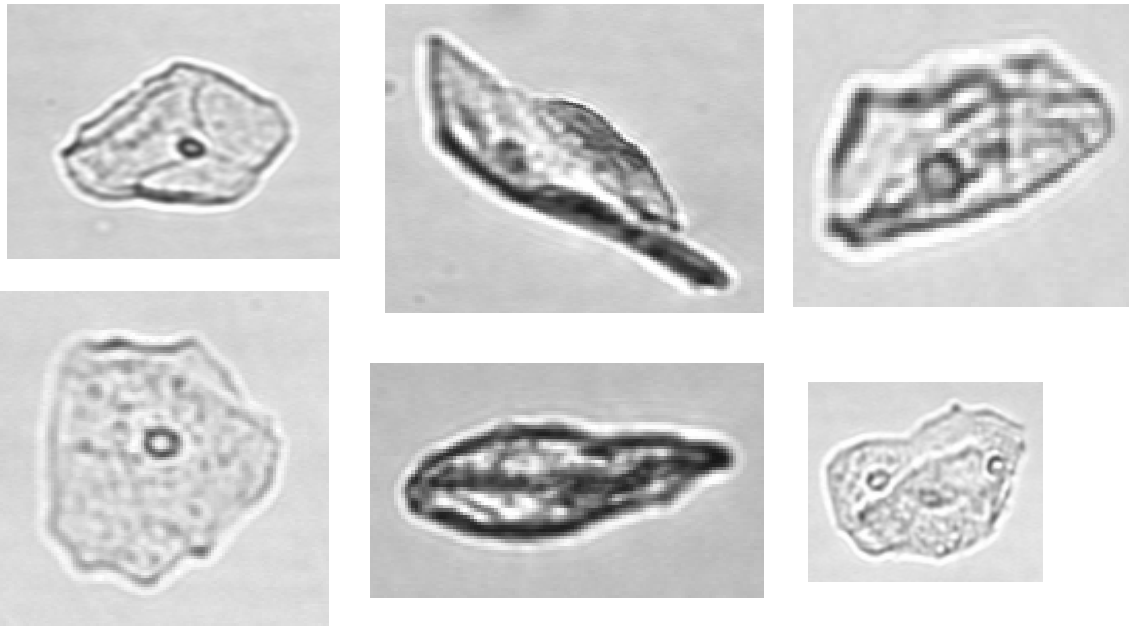
人工鏡檢
膽固醇結晶



上皮細胞 Epithelial Cells

*iQ*TM₂₀₀ 鱗狀上皮細胞

**Squamous Epithelial Cells
(SQEP)**



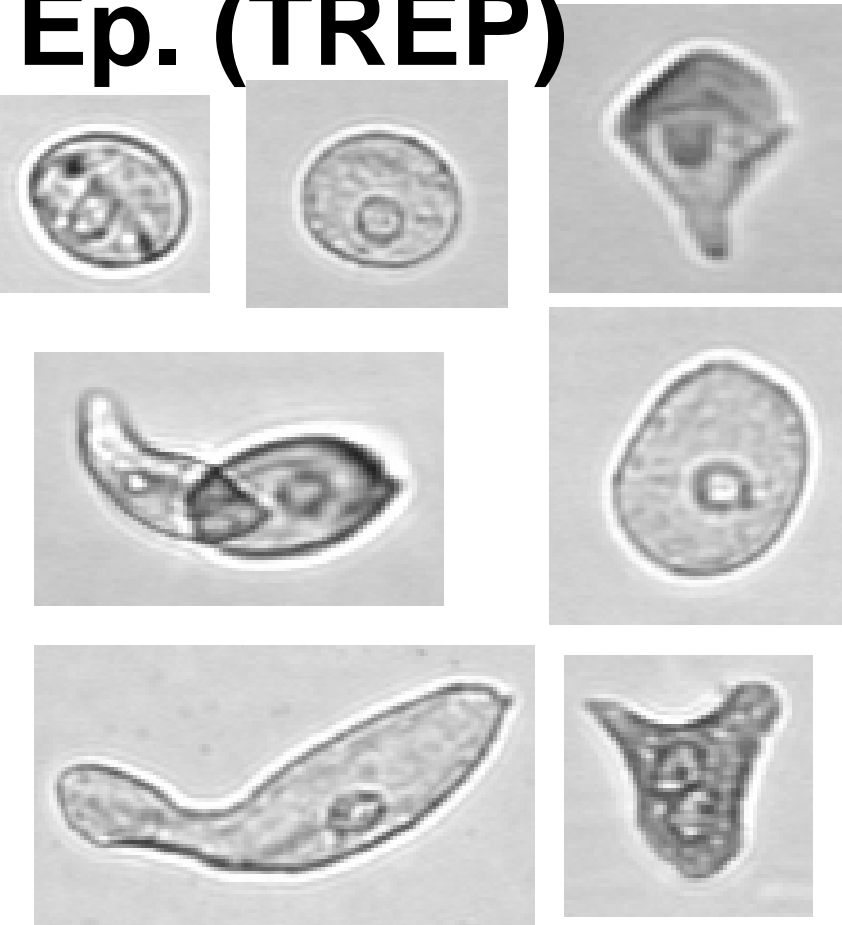
人工鏡檢
Epithelial
Cells



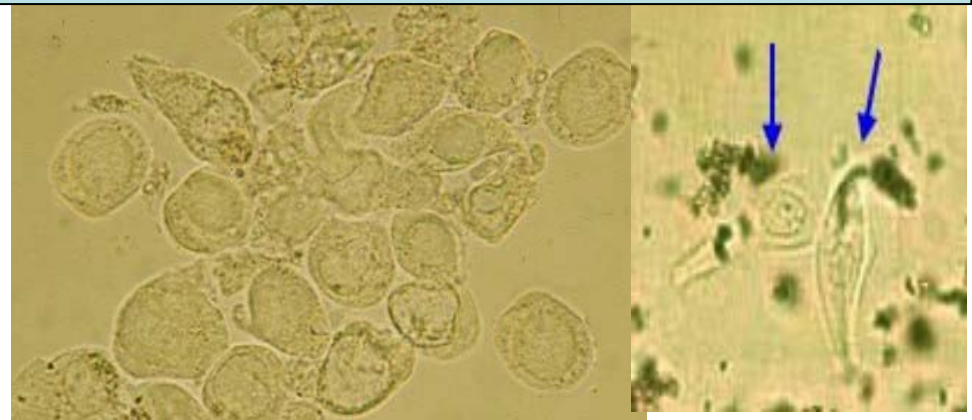


非鱗狀 Non-squamous
Epithelial Cells (NSE)

移行 Transitional
Ep. (TREP)



人工鏡檢
TREP

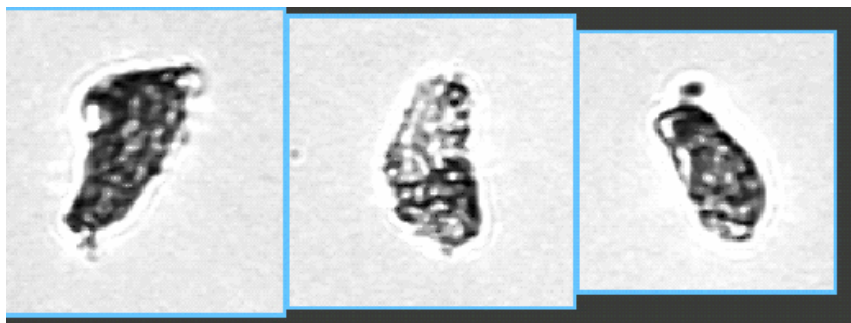
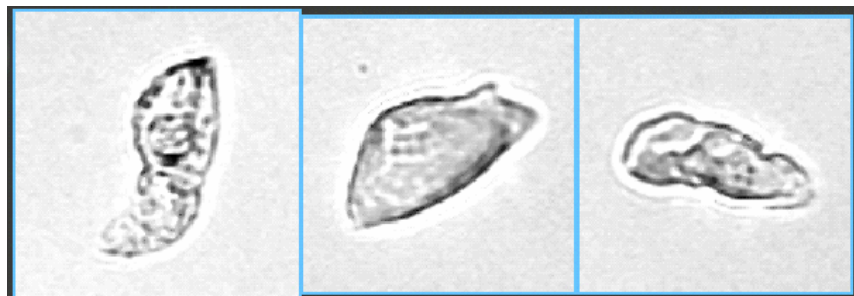


iQTM₂₀₀

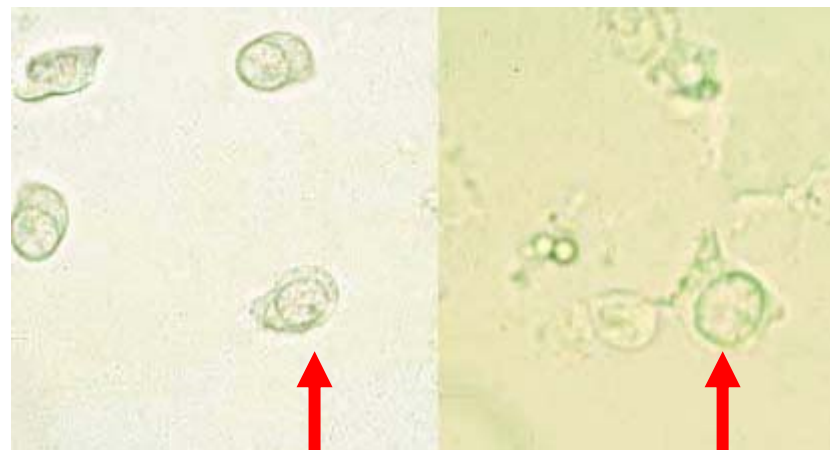
非鱗狀 Non-squamous

Epithelial Cells (NSE)

腎小管 Renal
Ep. (REEP)

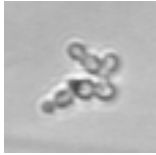
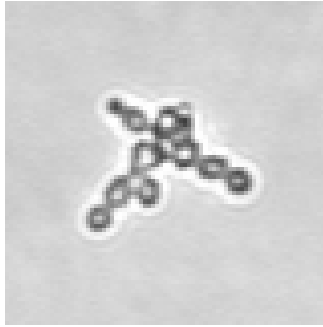
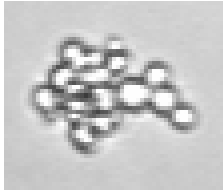
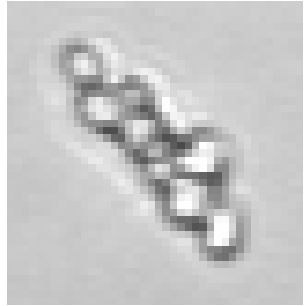


人工鏡檢NSE



Budding Yeast (BYST)

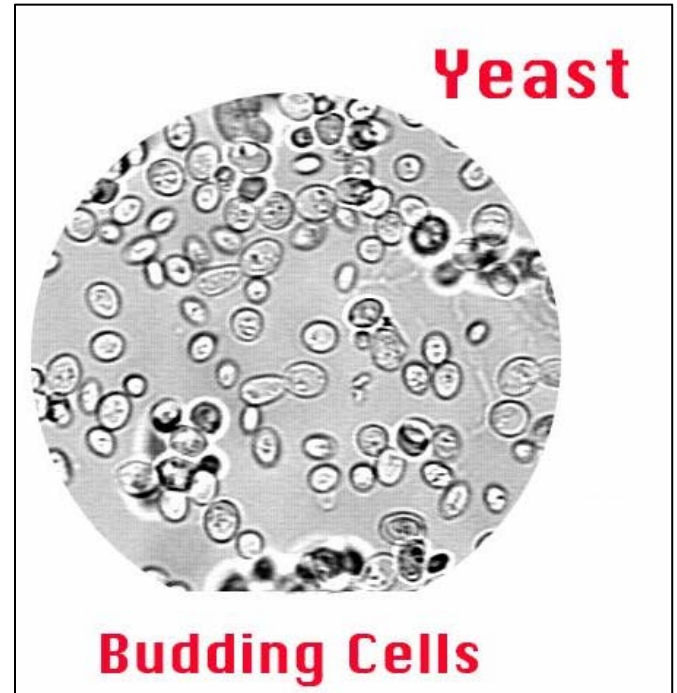
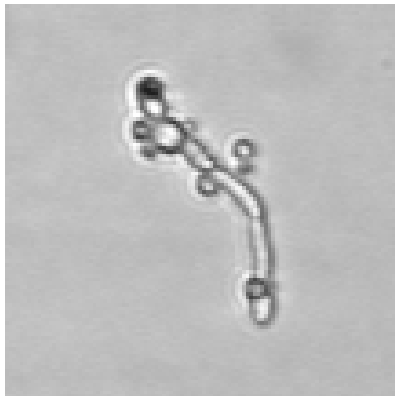
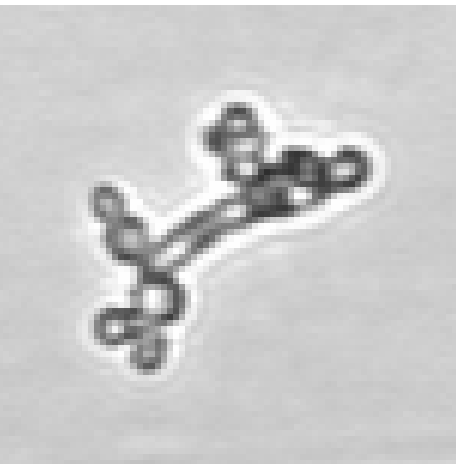
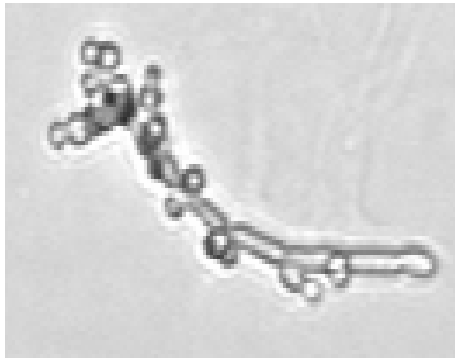
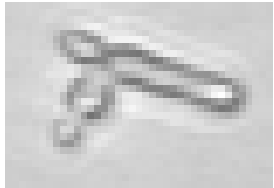
酵母菌
Yeast



人工鏡檢
BYST

Hyphae Yeast (HYST)

iQTM₂₀₀

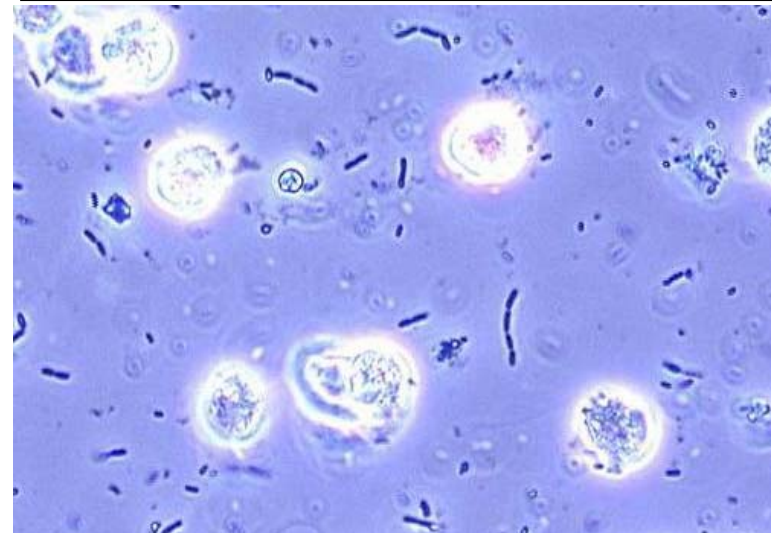
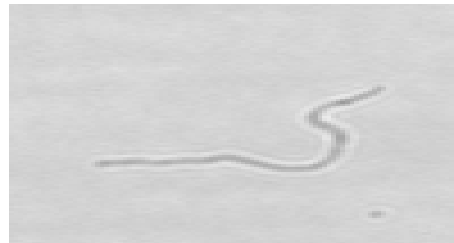
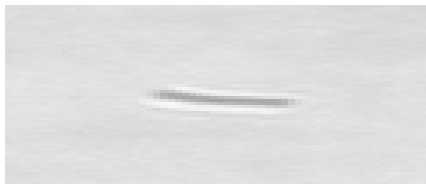
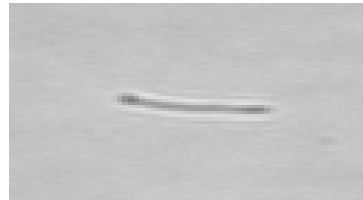
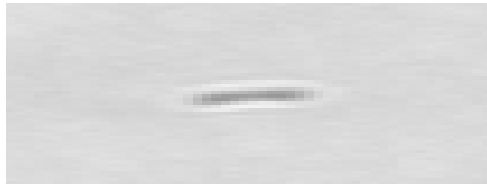
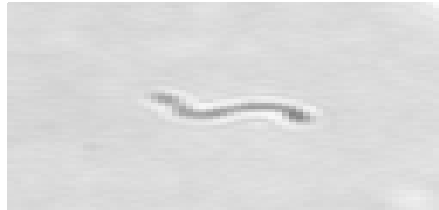
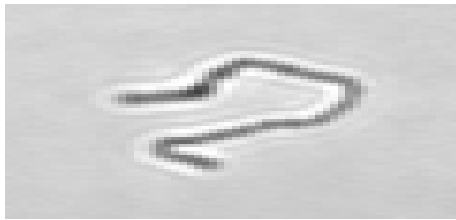


細菌Bacteria (BACT)

*iQ*TM₂₀₀

桿菌

人工鏡檢
BACT



STANDBY

Specimens

Work List (1)

Instrument

Operator: User

UNCL

2649 /uL

球菌

WBC

BACT

RBC

DRBC

SQEP

Crystals...

WBCC

Casts...

NSE

Others...

ART

Info...

3005103228

2008-01-15 10:40:06

1/1

1:1

All Small Particles: 177368/uL

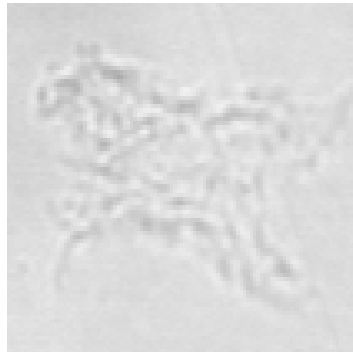
Cleared flags:

HIGH CONCENTRATION
Possible Amorphous

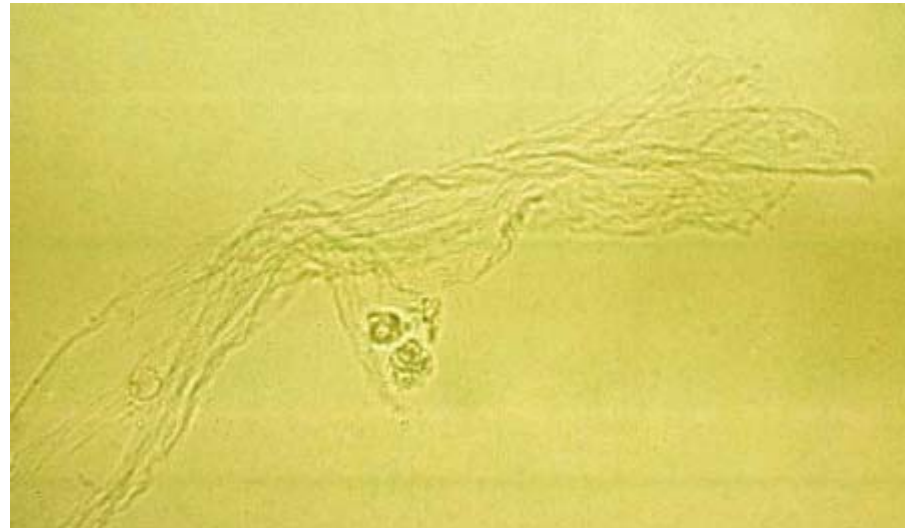
All Small Particles 177368 / u L 人工鏡檢 看到

黏液絲Mucus (MUCS)

*iQ*TM₂₀₀



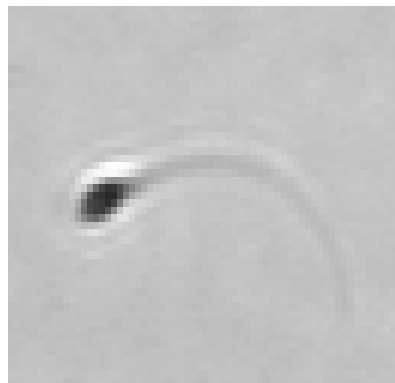
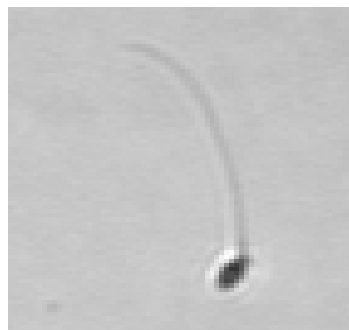
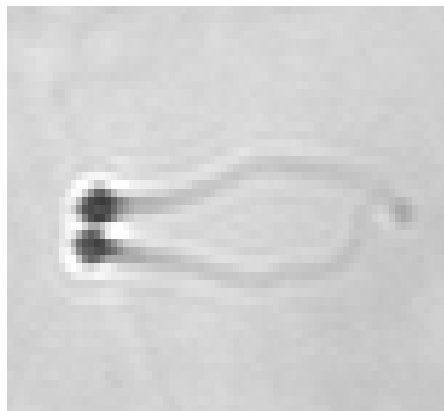
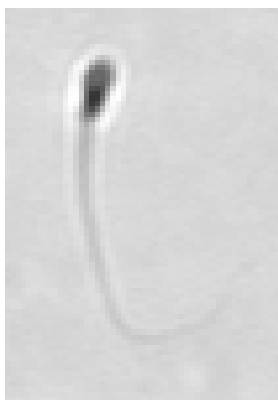
人工鏡檢
MUCS



iQTM₂₀₀

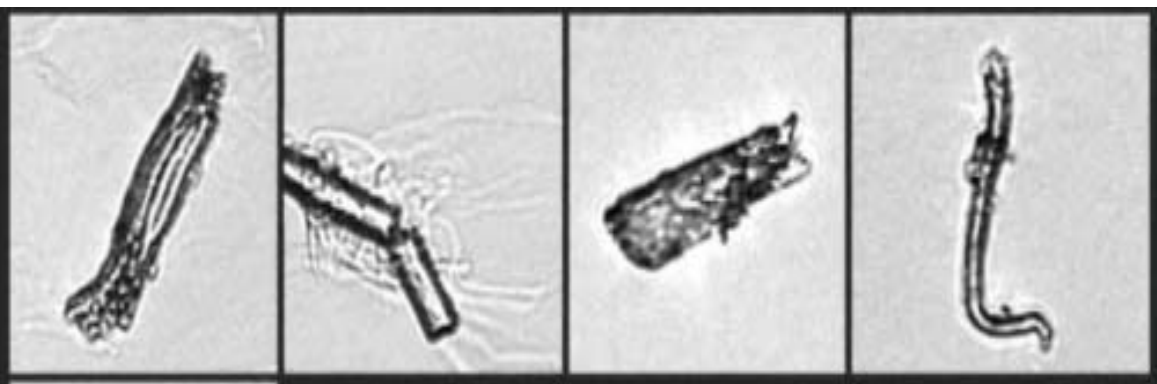
精蟲Sperm (SPRM)

人工鏡檢
SPRM



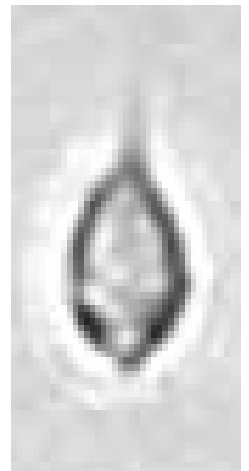
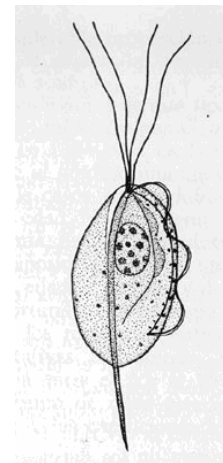
*iQ*TM₂₀₀ Art

人工鏡檢
ART

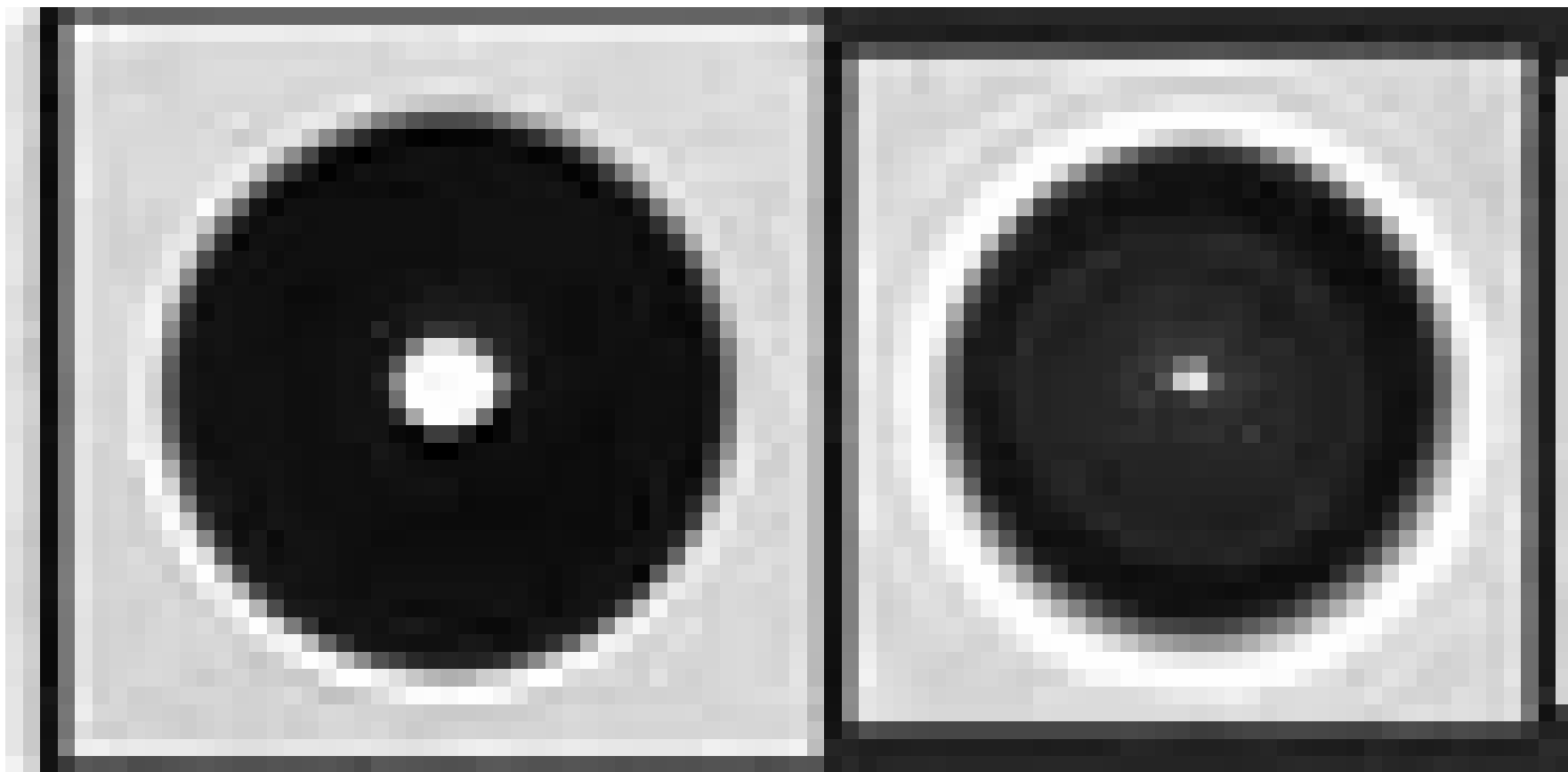


*iQ*TM₂₀₀ Trichomonas

人工鏡檢
陰道滴蟲



氣泡



STANDBY

STANDBY

Specimens

Work List (67)

Instrument

Operator: user

Particle

Concentration

Normal Range

Abnormal Range

Off-Scale

RBC

26 /HPF



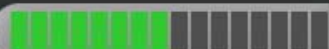
WBC

1 /HPF



BACT

+-



UNCX

RARE



UNCL

91 /uL



NC07218G0000200000

2009-08-17 18:07:34

8/3(2)

1:1

RED BLOOD CELLS

H RBC 26 /HPF
DRBC [none]

BACTERIURIA CHECKLIST

Chemistry

LEU Negative
H NIT 0.2 mg/dL

Microscopy

WBC 1 /HPF
BACT +-
All Small Particles: 190/uL

H GLU 100 mg/dL

PRO Negative

H BIL 2.0 mg/dL

H URO 2.0 mg/dL

PH 6.0

BLD Negative

KET Negative

H NIT 0.2 mg/dL

LEU Negative

CLA Clear

SPGR 1.005

COL Straw

ASA Negative

All AMOR

Other...

Edit Comment

Turbo Edit

Edit

Redo

Skip

Hold

Accept

STANDBY

Operator: user

尿沉渣報告

Specimens

Work List (67)

Instrument

Particle	Concentration
RBC	26 /HPF
WBC	1 /HPF
BACT	+-
UNCX	RARE
UNCL	91 /uL



NC07218G0000200000
2009-08-17 18:07:34
8/3(2)
1:1

RED BLOOD CELLS
H RBC 26 /HPF
DRBC [none]

BACTERIURIA CHECKLIST
Chemistry LEU Negative

H GLU 100 mg/dL
PRO Negative
H BIL 2.0 mg/dL
H URO 2.0 mg/dL
PH 6.0
BLD Negative
KET Negative
H NIT 0.2 mg/dL
LEU Negative

滿格

綠色代表報告濃度低過正常值

紅色代表報告濃度超過正常值

Turbo Edit

Edit

Redo

Skip

Hold

Accept

MEASURE

Specimens

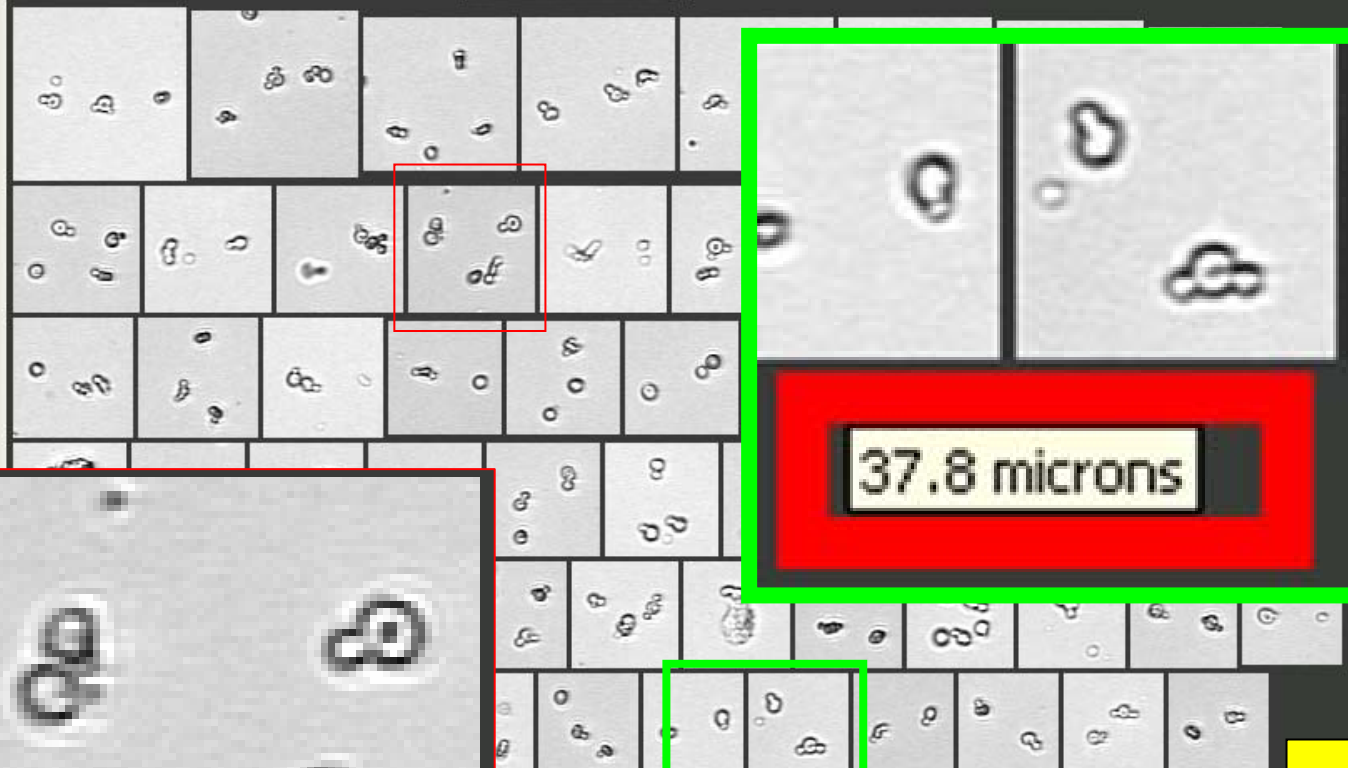
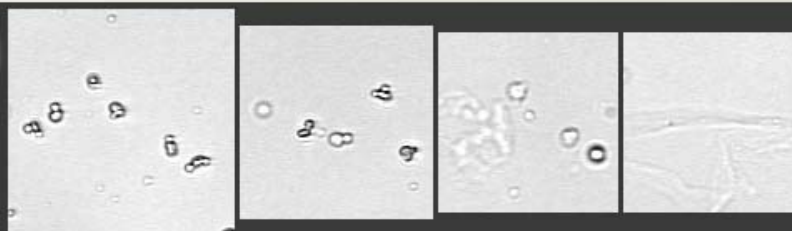
Found List (1)

Instrument

Operator: user

UNCL

8732 /uL



37.8 microns

37.8 microns

WBC

BACT

RBC

DRBC

SQEP

Crystals...

WBCC

Casts...

NSE

Others...

ART

Info...

<<Released>>

632499

2009-10-14 11:17:28

4/1(188)

1:1

All Small Particles: 12271/uL

Cleared flags:

HIGH CONCENTRATION

IQ200

實例 DRBC

ults

Print Screen

Save Screen

STANDBY

! REF Calibration
Stale Data

ist (47)

Instrument

Operator: User

下一頁

RBC

161 /HPF



WBC

BACT

RBC

DRBC

SQEP

Crystals...

WBCC

Casts...

NSE

Others...

ART

Info...

CA06152G1203000000

2007-11-29 08:13:05

2/2

1:1

All Small Particles: 62/uL

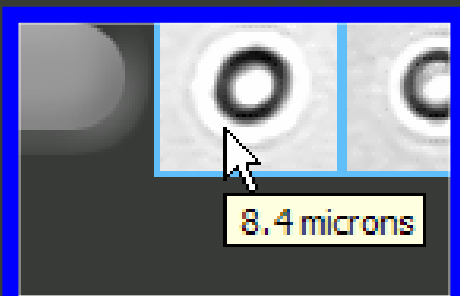
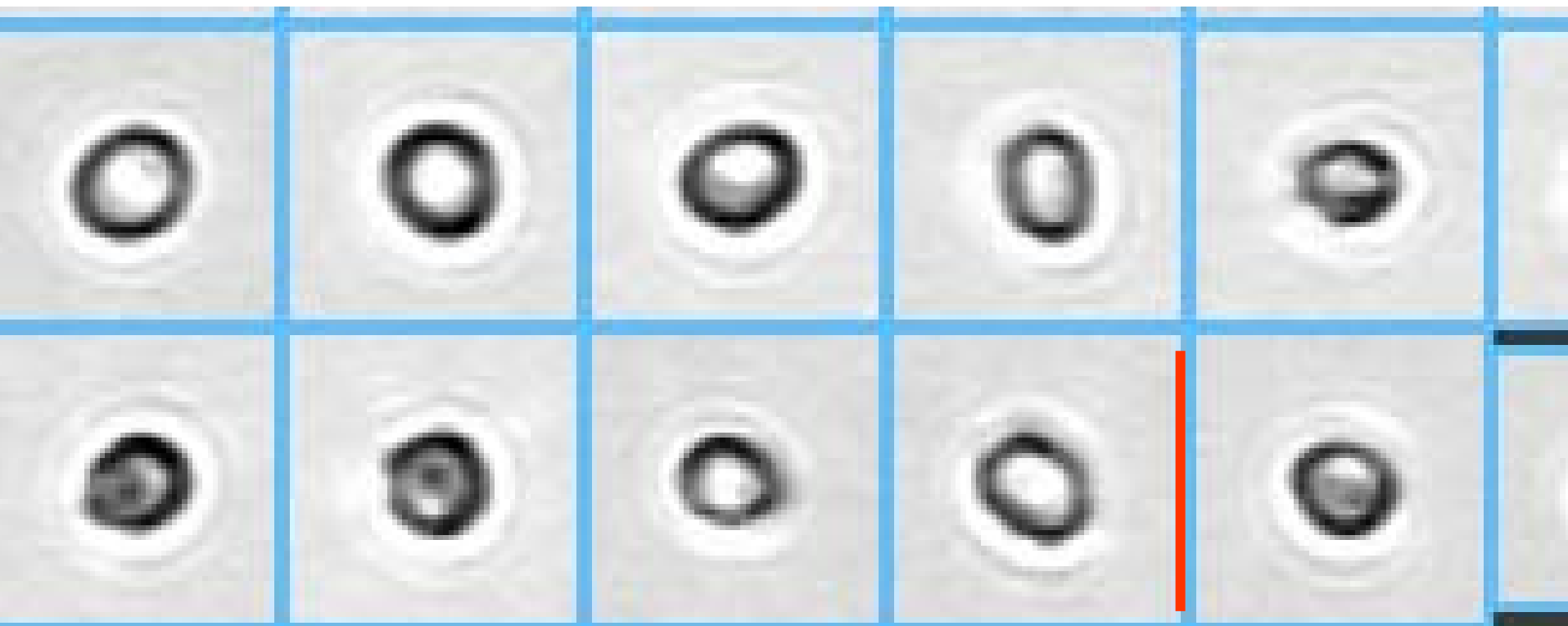
15.4 microns

8um 戒指

Print Screen

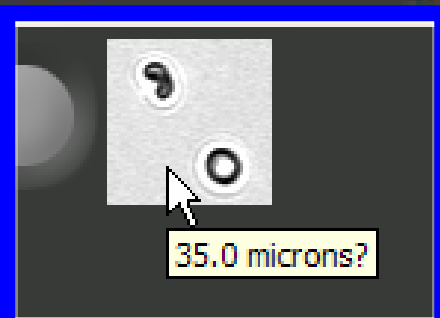
15.4 microns

游標置於影像



8.4 microns

15.4 microns



35.0 microns?

STANDBY

Specimens

Found List (1)

Instrument

RBC

4422 /uL

Ghost cells
Lost hemoglobin
Appear RBC, UNCL

WBC

BACT

RBC

Crystals...

SQEP

Casts...

WBCC

Others...

NSE

ART

Info...

<<Released>>
0425100125
2004-09-07 10:34:22
10/2(2)
1:1

All Small Particles: 84773/uL

GLU	Normal
PRO	+2
BIL	-
URO	Normal
PH	6.0
BLD	+3
KET	-
NIT	+2
LEU	500 Leu/uL
CLA	Turbid
SPGR	1.015
COL	Red

Cleared flags:
HIGH CONCENTRATION

STANDBY

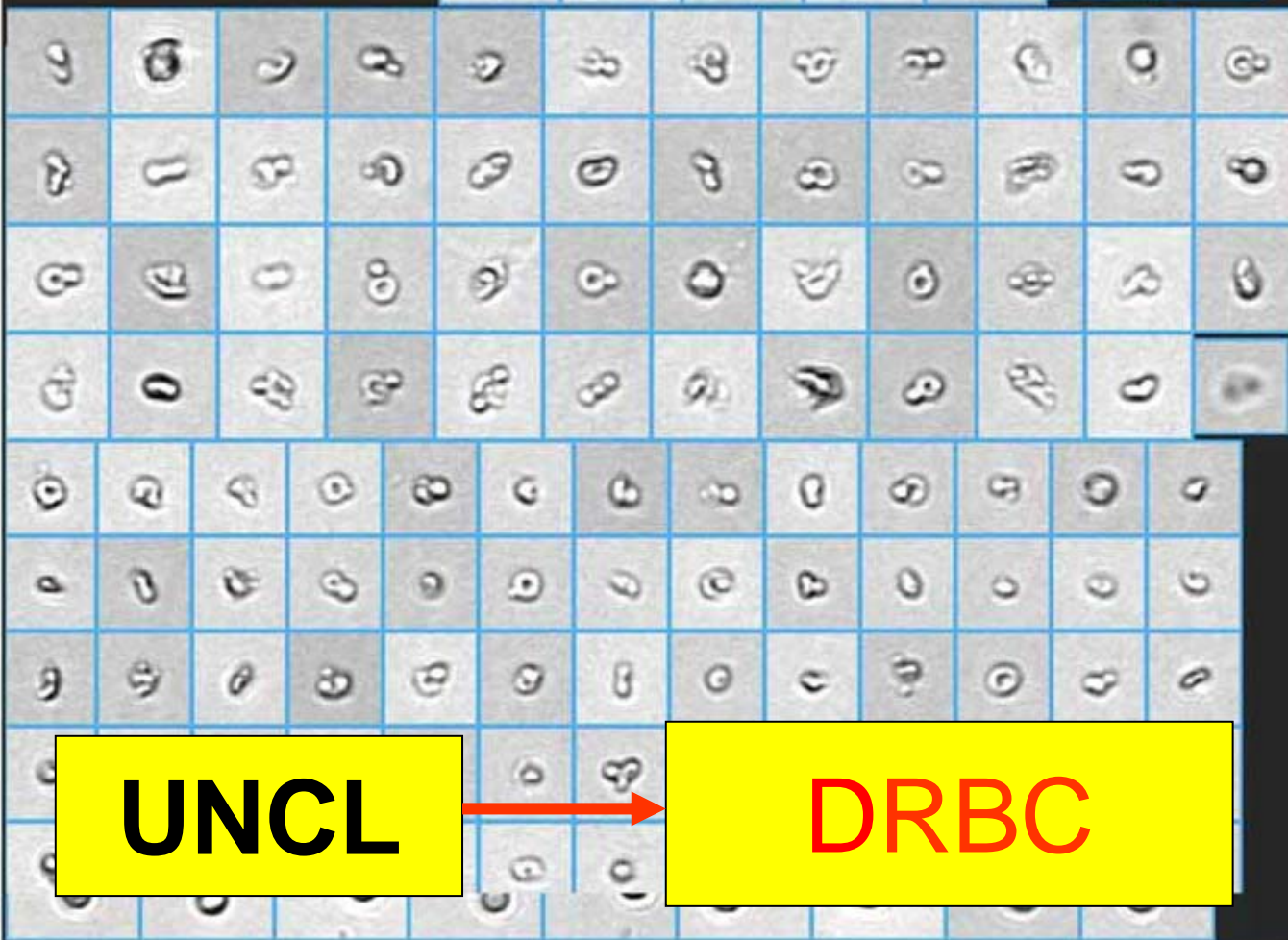
Specimens

Found List (1)

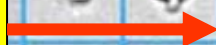
Instrument

UNCL

29 /HPF



UNCL



DRBC

WBC

BWCT

RBC

DRBC

SQEP

Crystals...

WBCC

Conts...

NSE

Others...

ART

Info...

<<Released>>

0425100125

2004-09-07 10:34:22

10/2(2)

1:1

All Small Particles: 84773/uL

GLU	Normal
PRO	+2
BIL	-
URO	Normal
PH	6.0
BLD	+3
KET	-
NIT	+2
LEU	500 Leu/uL
CLA	Turbid
SPGR	1.015
COL	Red

Cleared flags:

HIGH CONCENTRATION

Results

STANDBY

Specimens

Found List (22)

Instrument

Operator: q

WBCC

MANY



背景有細菌



WBC

BACT

RBC

SQEP

Crystals...

WBCC

Casts...

NSE

Others...

ART

Info...

<<Released>> <<Imported>>

Bacteria

2006-08-24 13:49:38

0/7

1:1

All Small Particles: 38484 uL

GLU	Neg
PRO	Tr
BIL	Neg
URO	Pos
PH	6.0
BLD	-
KET	-
H	INIT Pos
H	LEU 2+
	CLA Turbid
H	SPGR 1.020
	COL Yellow
ASA	N/A

Results

Print Screen

STANDBY

Specimens

Found List (76)

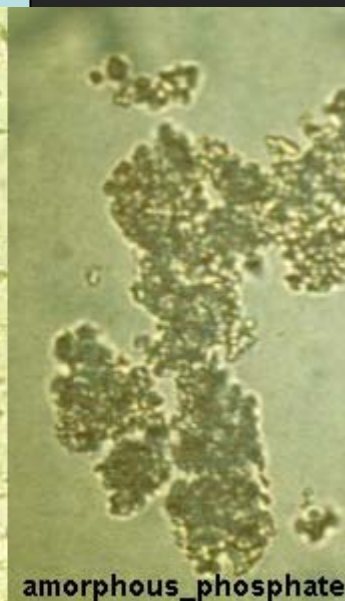
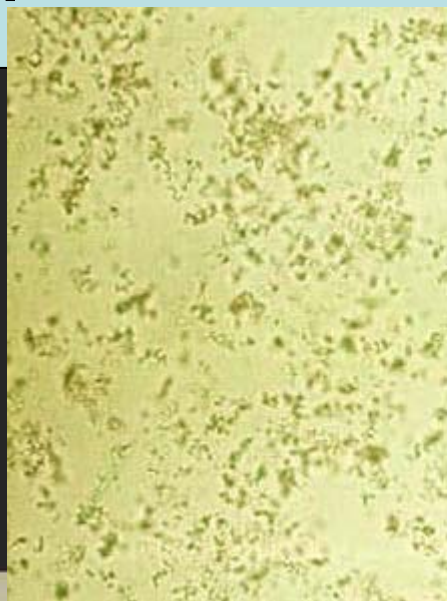
Instrument

AMOR

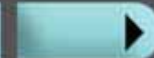
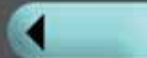
MOD



All small particles



amorphous_phosphate_



WBC

BACT

RBC

Crystals...

SQEP

Casts...

WBCC

Others...

NSE

ART

Info...

CAOX

AMOR

UNCX

URIC

TPO4

CACB

CAPH

CYST

LEUC

TYRO

Results

Print Screen

STANDBY

Specimens

Work List (1)

Instrument

Operator: User

UNCL

2649 /uL

球菌

WBC

BACT

RBC

DRBC

SQEP

Crystals...

WBCC

Casts...

NSE

Others...

ART

Info...

3005103228

2008-01-15 10:40:06

1/1

1:1

All Small Particles: 177368/uL

Cleared flags:

HIGH CONCENTRATION
Possible Amorphous

All Small Particles 177368 / u L 人工鏡檢 看到

STANDBY

STANDBY

Specimens

Found List (137)

Instrument

Operator: user

WBC

16 /HPF



WBC

BACT

RBC

DRBC

SQEP

Crystals...

WBCC

Casts...

NSE

Others...

ART

Info...

<<Released>>

198102601015

2009-10-26 10:40:22

8/1(48)

1:1

All Small Particles: 1356/uL

H	GLU	500 mg/dL
	PRO	Negative
	BIL	Negative
	URO	Normal
	PH	6.0
H	BLD	0.03 mg/dL
	KET	Negative
	NIT	Negative
H	LEU	25 WBCs/uL
	CLA	Slightly-Cloudy
	SPGR	1.019
	COL	Light-Yellow
	ASA	Negative

yeast check

Results

Print Screen

Save Screen

STANDBY

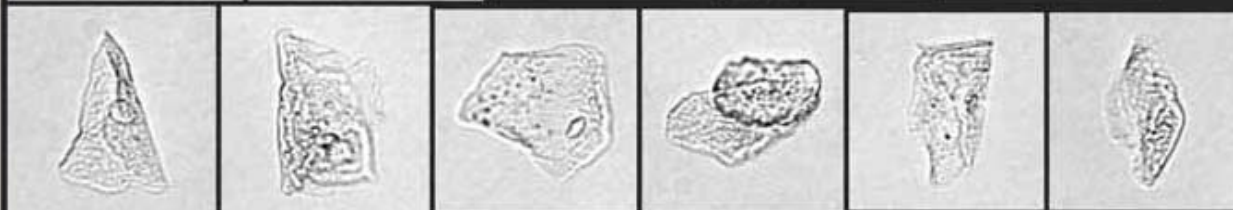
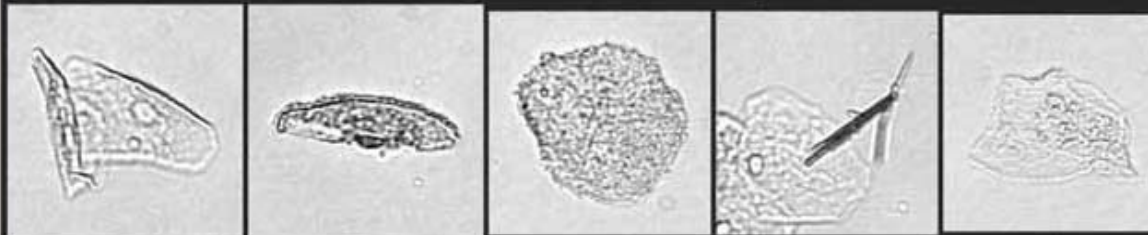
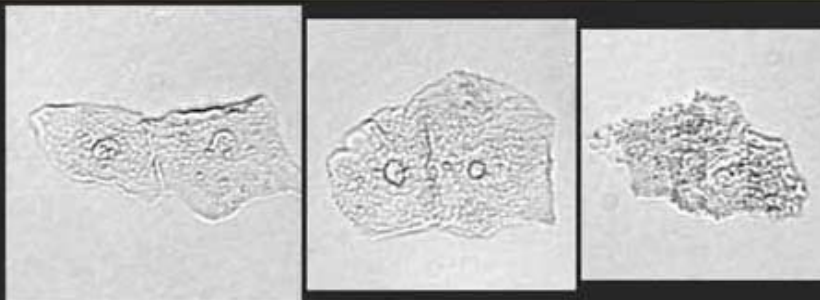
Specimens

Found List (76)

Instrument

SQEP

6 /HPF



WBC

BACT

RBC

Crystals...

SQEP

Casts...

WBCC

Others...

NSE

ART

Info...

<<Released>> <<Imported>>

171660-04I

2006-08-04 17:09:44

4/1(31)

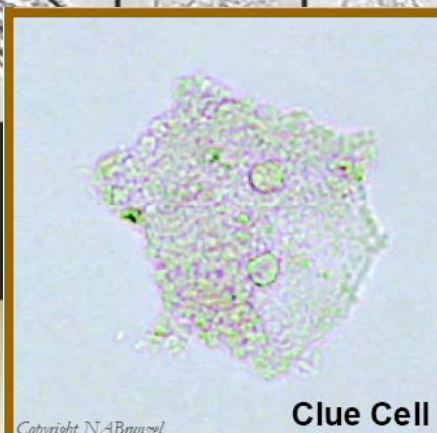
1:1

All Small Particles: 2535/uL

GLU	Normal
PRO	Negative
BIL	Negative
URO	<2.0
PH	5.0
H	BLD Small
KET	Negative
NIT	Negative
LEU	Negative
CLA	Clear
SPGR	1.022
COL	Yellow

Results

Print Screen



Clue Cell

Copyright NABmazel

Operator: 132415

NSE

3 /HPF



WBC

BACT

RBC

DRBC

SQEP

Crystals...

WBCC

Casts...

NSE

Others...

ART

Info...

<<Released>>

82117153

2008-01-17 12:24:40

1/8

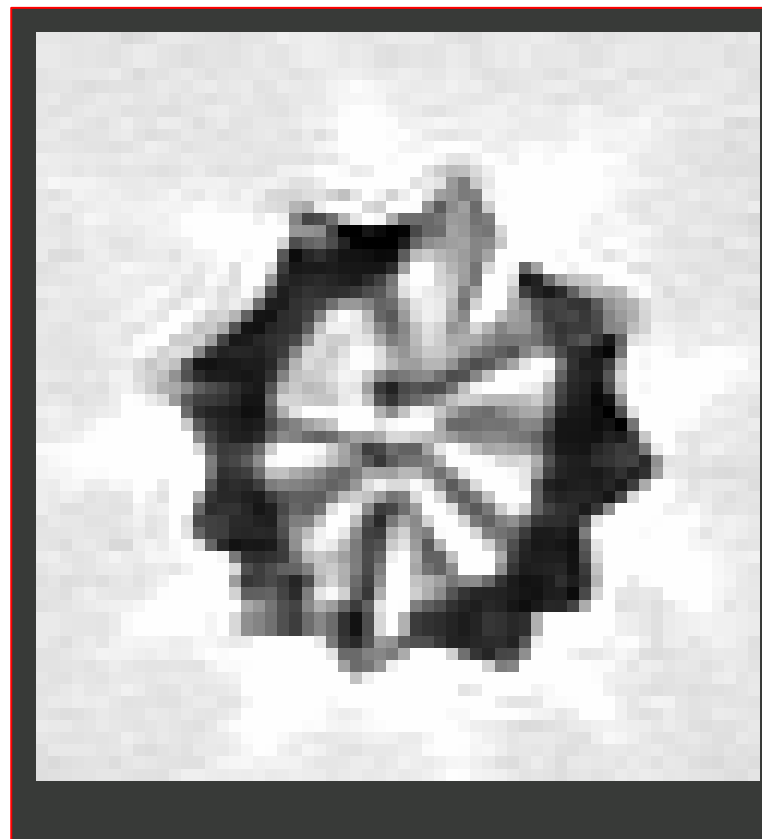
1:1

All Small Particles: 4737/uL

NSE

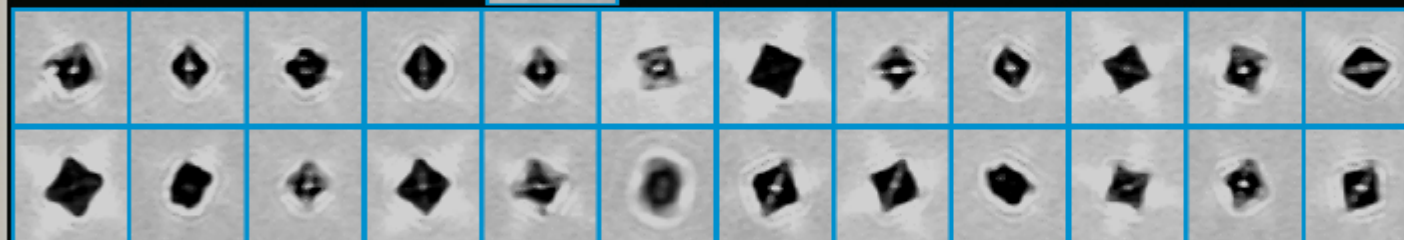
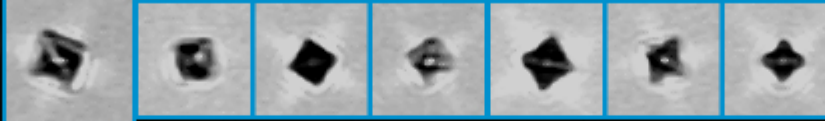
Results

Print Screen



CAOX

FEW



The most common shape of calcium oxalate crystals is that of its octahedral form. These crystals can be found in both acidic and neutral urines from healthy individuals. Pathologically, calcium oxalate crystals can be found in severe chronic renal disease.



Crystals – Calcium Oxalate (CAOX)



WBC

BACT

RBC

Crystals...

SQEP

Casts...

WBCC

Others...

NSE

ART

Info...

CAOX

AMOR

UNCX

URIC

TPO4

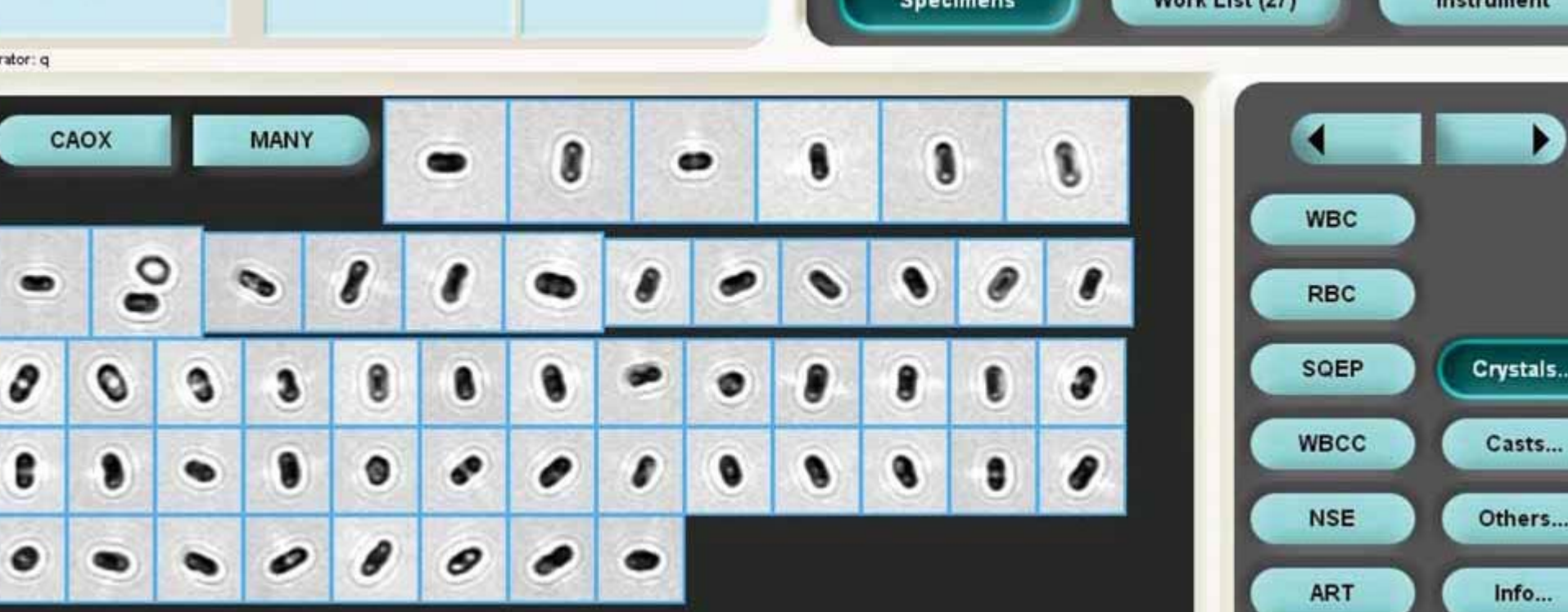
CACB

CAPH

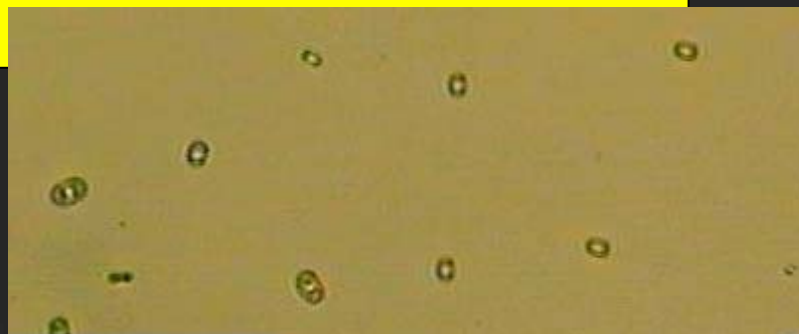
CYST

LEUC

TYRO



單水草酸鈣，若從側面看會像啞鈴形



OFF

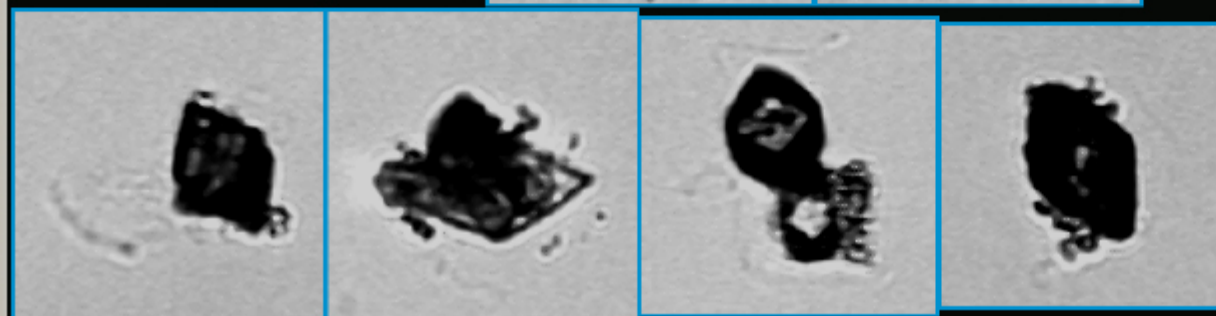
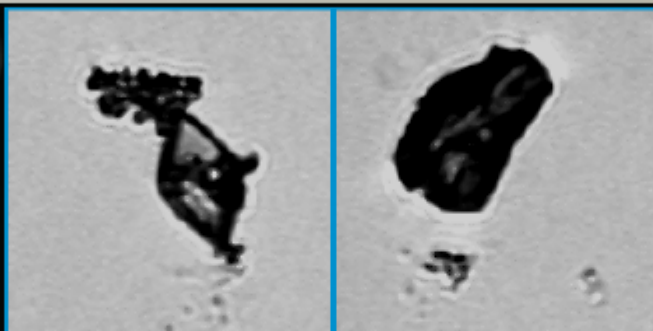
Specimens

Found List (1183)

Instrument

URIC

RARE



Crystals – Uric Acid (URIC)



WBC

BACT

RBC

Crystals...

SQEP

Casts...

WBCC

Others...

NSE

ART

Info...

CAOX

AMOR

UNCX

URIC

TPO4

CACB

CAPH

CYST

LEUC

TYRO

Results

STANDBY

Specimens

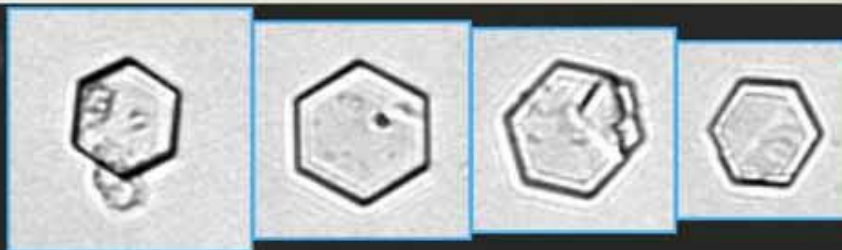
Found List (4)

Instrument

Operator: Tech

CYST

POS



胱氨酸



WBC

BACT

RBC

SQEP

Crystals...

WBCC

Casts...

NSE

Others...

ART

Info...

CAOX

AMOR

UNCX

URIC

TPO4

CACB

CAPH

CYST

LEUC

TYRO

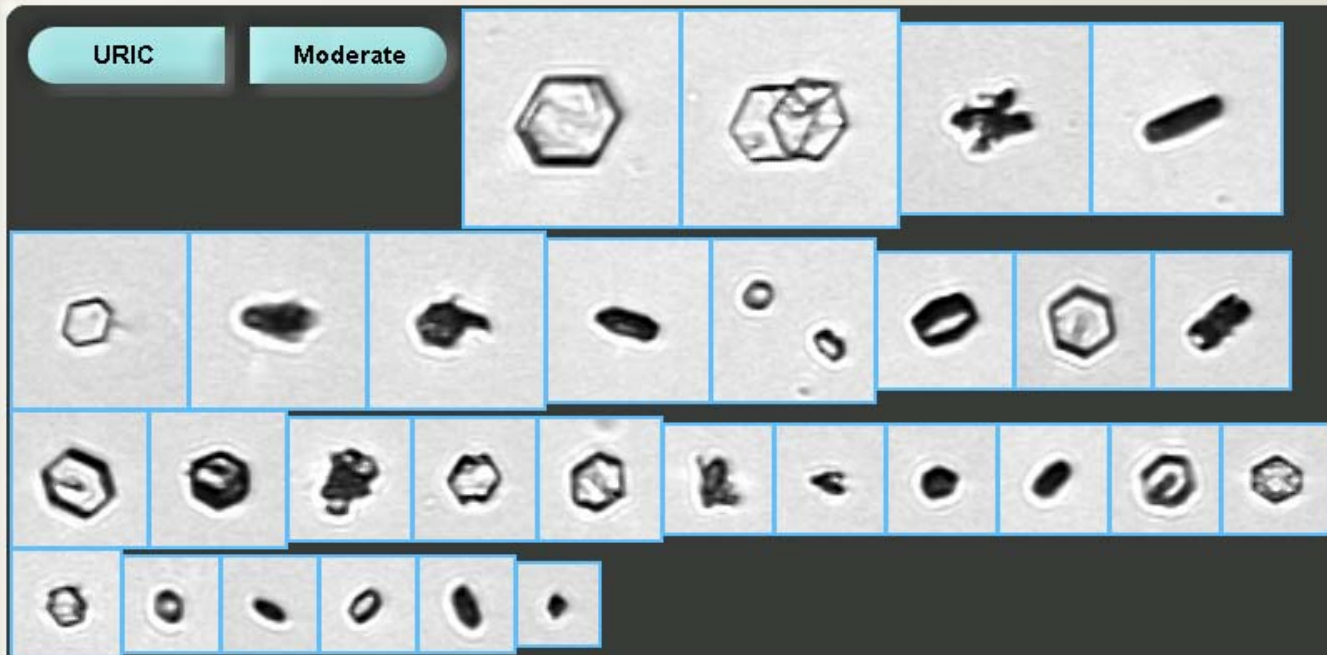
Results

Print Screen

Operator: 30611

URIC

Moderate



WBC

BACT

RBC

DRBC

SQEP

Crystals...

WBCC

Casts...

NSE

Others...

ART

Info...

CAOX

AMOR

UNCX

URIC

TPO4

CACB

CAPH

CYST

LEUC

TYRO

Results

Print Screen

MEASURE

7/2

Specimens

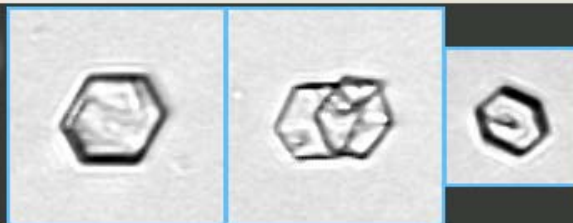
Found List (111)

Instrument

Operator: 129070

NSE

<1 /HPF



實例 URIC

WBC

BACT

RBC

DRBC

SQEP

Crystals...

WBCC

Casts...

NSE

Others...

ART

Info...

<<Released>>

11520044

2009-05-19 19:22:31

6/1

1:1

All Small Particles: 9833/uL

胱氨酸可溶於稀鹽酸

尿酸結晶不溶於稀鹽酸

Results

Print Screen

STANDBY

Specimens

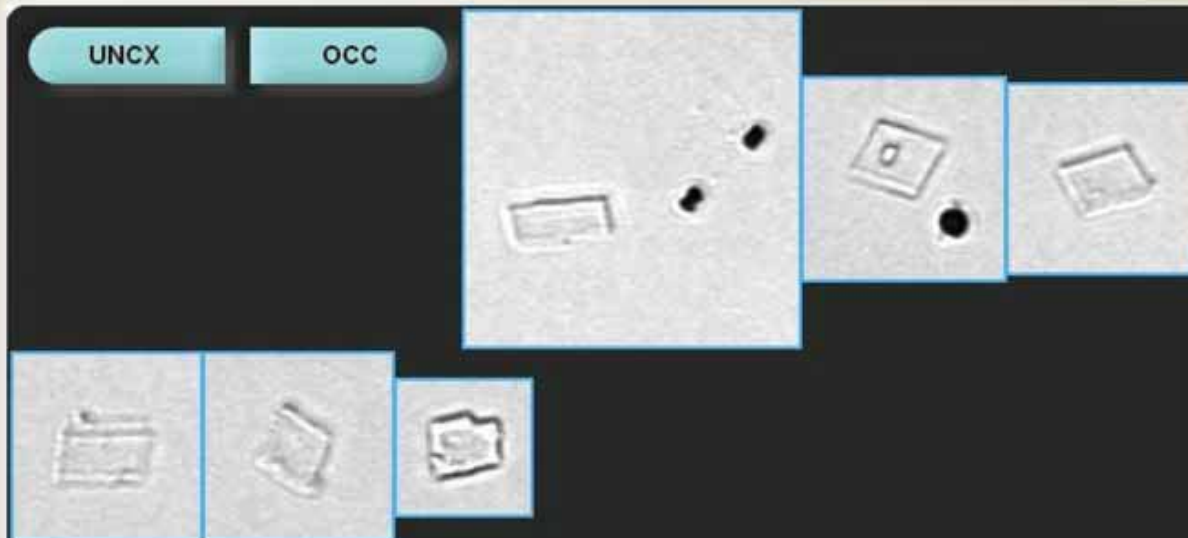
Found List (7)

Instrument

Operator: q

UNCX

OCC



Cholesterol Crystal

膽固醇結晶



WBC

BACT

RBC

SQEP

Crystals...

WBCC

Casts...

NSE

Others...

ART

Info...

CAOX

AMOR

UNCX

URIC

TPO4

CACB

CAPH

CYST

LEUC

TYRO

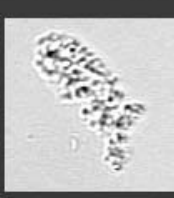
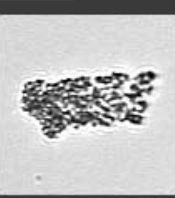
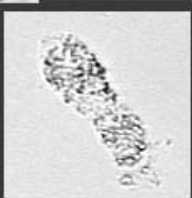
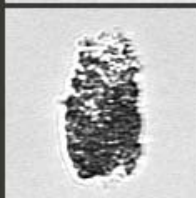
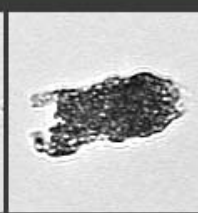
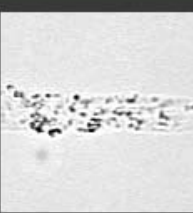
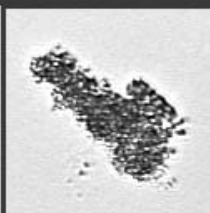
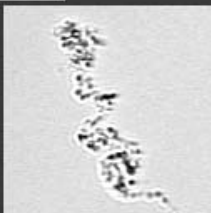
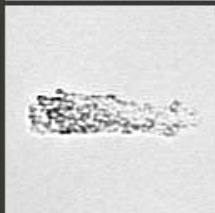
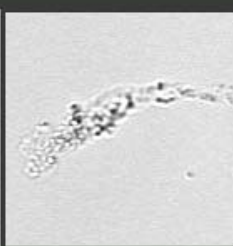
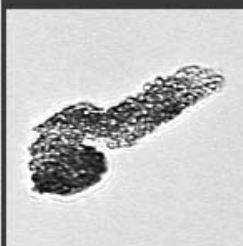
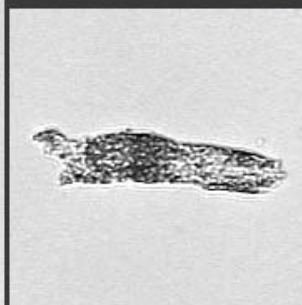
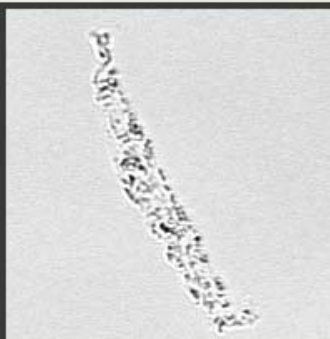
Results

Print Screen

Operator: 52756

GRAN

87 /LPF



WBC

BACT

RBC

DRBC

SQEP

Crystals...

WBCC

Casts...

NSE

Others...

ART

Info...

HYAL

RBCT

GRAN

WBCT

CELL

EPIC

WAXY

FATC

BROAD

UNCC

Results

Print Screen

STANDBY

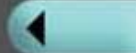
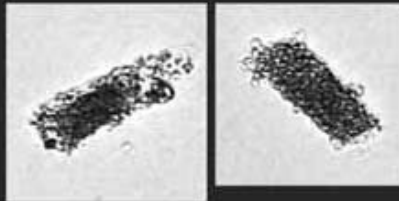
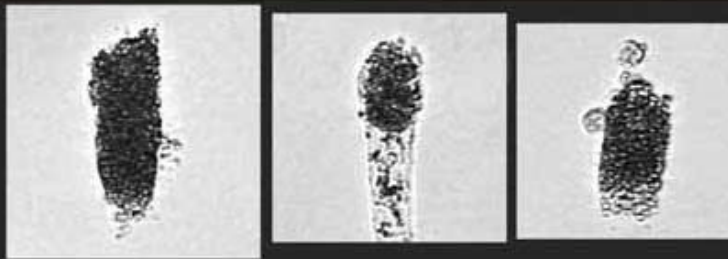
Specimens

Found List (76)

Instrument

RBCT

10 /LPF



WBC

BACT

RBC

Crystals...

SQEP

Casts...

WBCC

Others...

NSE

ART

Info...

HYAL

RBCT

GRAN

WBCT

CELL

EPIC

WAXY

FATC

BROAD

UNCC

Results

Print Screen

STANDBY

Specimens

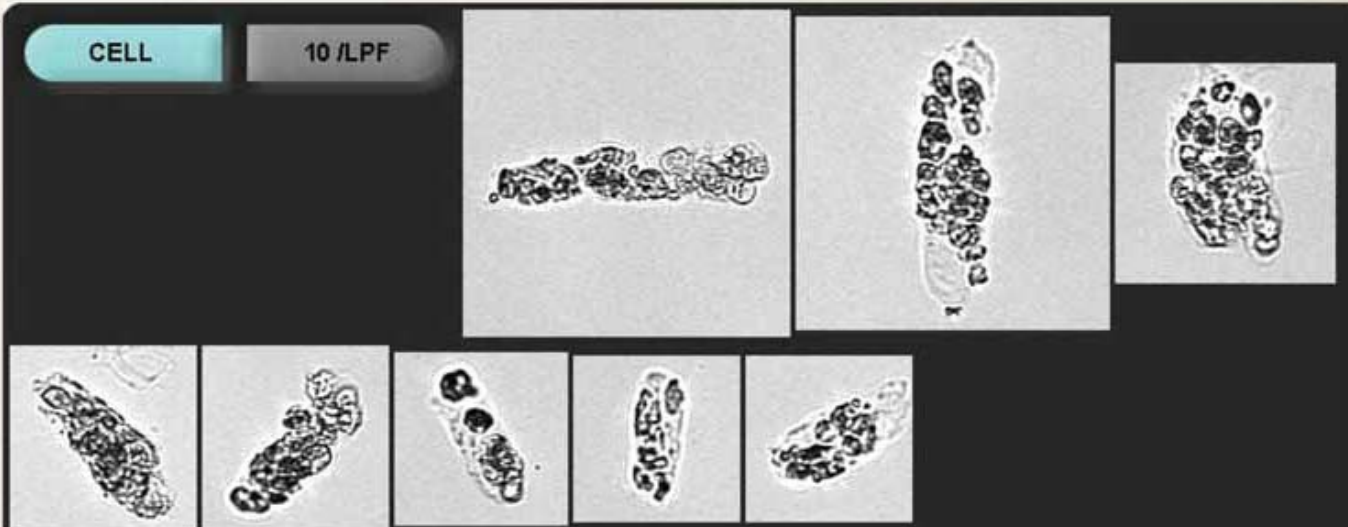
Found List (4)

Instrument

Operator: Tech

CELL

10 /LPF



WBC

BACT

RBC

SQEP

Crystals...

WBCC

Casts...

NSE

Others...

ART

Info...

HYAL

RBCT

GRAN

WBCT

CELL

EPIC

WAXY

FATC

BROAD

UNCC

Results

Print Screen

STANDBY

Specimens

Found List (76)

Instrument

BROAD

1 /LPF



74.2 microns

74.2um , 約30um



74.2 microns



WBC

BACT

RBC

Crystals...

SQEP

Casts...

WBCC

Others...

NSE

ART

Info...

HYAL

RBCT

GRAN

WBCT

CELL

EPIC

WAXY

FATC

BROAD

UNCC

STANDBY

Specimens

Found List (22)

Instrument

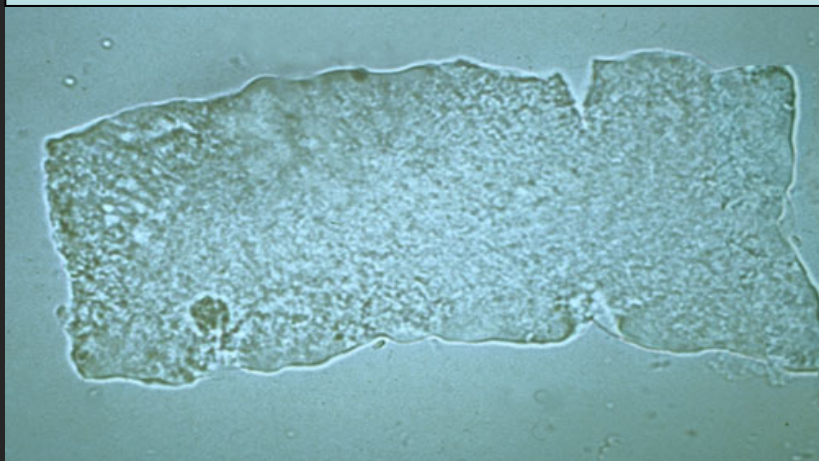
Operator: q

WAXY

1 /LPF



人工鏡檢WAXY



WBC

BACT

RBC

SQEP

Crystals...

WBCC

Casts...

NSE

Others...

ART

Info...

HYAL

RBCT

GRAN

WBCT

CELL

EPIC

WAXY

FATC

BROAD

UNCC

Results

Print Screen

OFF

Specimens

Found List (1183)

Instrument

REEP

1 /HPF



WBC

BACT

RBC

Crystals...

SQEP

Casts...

WBCC

Others...

NSE

ART

Info...

REEP

TREP

HYST

BYST

MUCS

SPRM

RBCC

TRCH

OVFB

FAT

Others – Renal Epithelial Cells (REEP)

Results

STANDBY

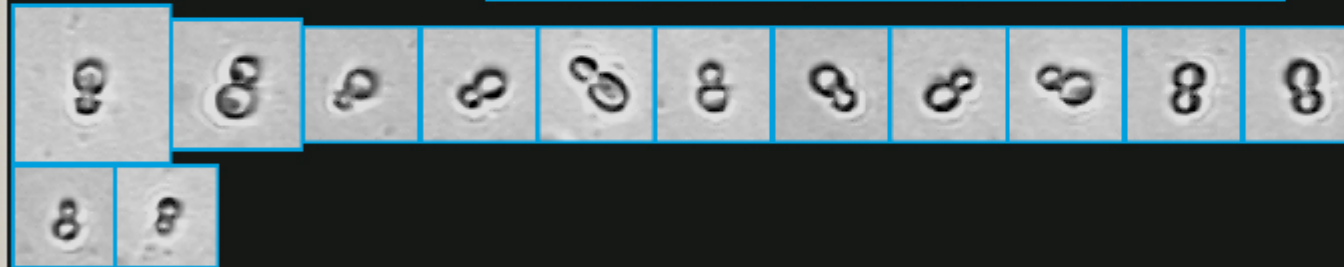
Specimens

Found List (274)

Instrument

BYST

Present



WBC

BACT

RBC

Crystals...

SQEP

Casts...

WBCC

Others...

NSE

ART

Info...

REEP

TREP

HYST

BYST

MUCS

SPRM

RBCC

TRCH

OVFB

FAT

Others – Budding Yeast (BYST)

Results

STANDBY

Specimens

Found List (103)

Instrument

Operator: USER

BACT

+/-



WBC

BACT

RBC

DRBC

SQEP

Crystals...

WBCC

Casts...

NSE

Others...

ART

Info...

<<Released>>

502027

2008-12-02 20:54:03

8/1

1:1

All Small Particles: 851/uL

	GLU	Normal
H	PRO	10 mg/dL
	BIL	-
	URO	Normal
	PH	7.0
	BLD	-
	KET	-
	HIT	-
	LEU	Negative
	CLA	Clear
	SPGR	>1.050
	COL	Light-Yellow

Results

Print Screen

STANDBY

Specimens

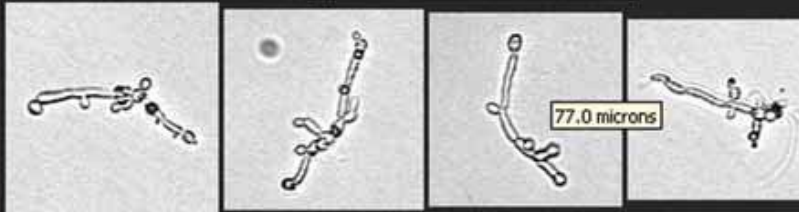
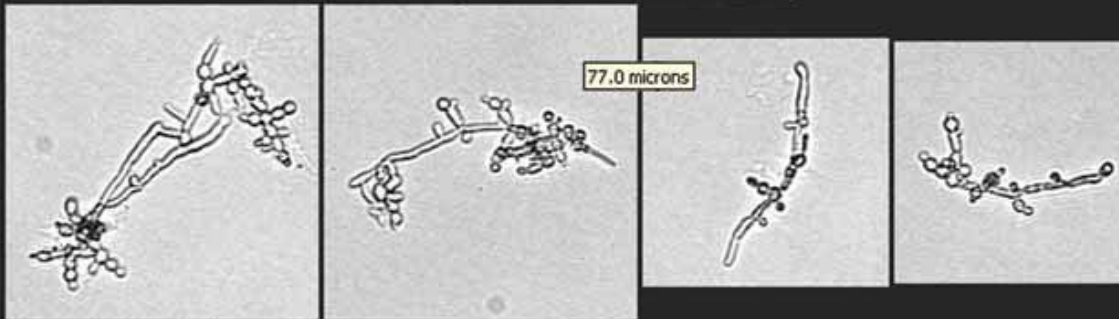
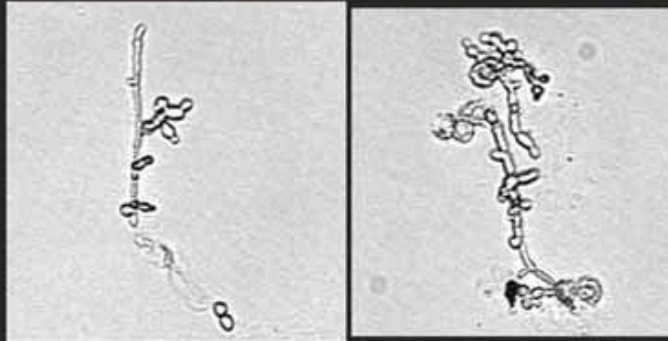
Found List (72)

Instrument

Operator: [IRIS]

HYST

Mod



WBC

BACT

RBC

SQEP

Crystals...

WBCC

Casts...

NSE

Others...

ART

Info...

REEP

TREP

HYST

BYST

MUCS

SPRM

RBCC

TRCH

OVFB

FAT

Results

Print Screen

STANDBY

Specimens

Found List (47)

Instrument

SQEP

13 /uL



埃及血吸蟲

Schistosoma Haematobium Ova
出現於SQEP, HYAL, UNCC, UNCL



WBC

BACT

RBC

Crystals...

SQEP

Casts...

WBCC

Others...

NSE

ART

Info...

<<Released>>

45613Y/10/05

2005-10-29 15:56:41

6/2(56840)

1:1

All Small Particles: 16027/uL

Cleared flags:

HIGH CONCENTRATION

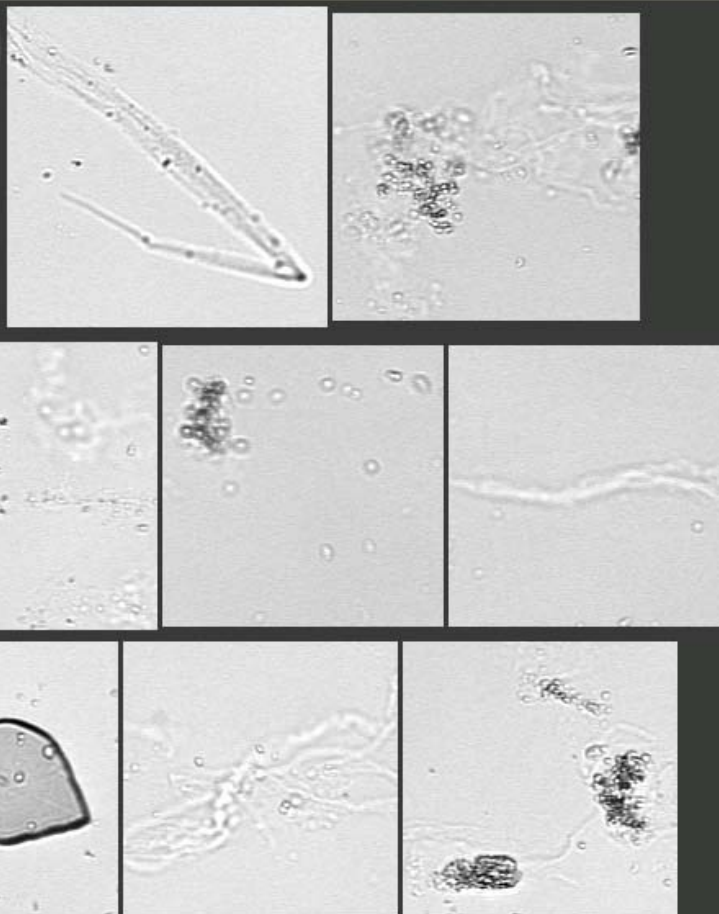
Results

Print Screen

Operator: User

UNCL

377 /HPF



WBC

BACT

RBC

DRBC

SQEP

Crystals...

WBCC

Casts...

NSE

Others...

ART

Info...

990718U099

2010-07-18 15:38:47

6/6

1:1

All Small Particles: 42651/uL

Cleared flags:

HIGH CONCENTRATION

FLOW

Possible Amorphous

Results

Print Screen

STANDBY

Specimens

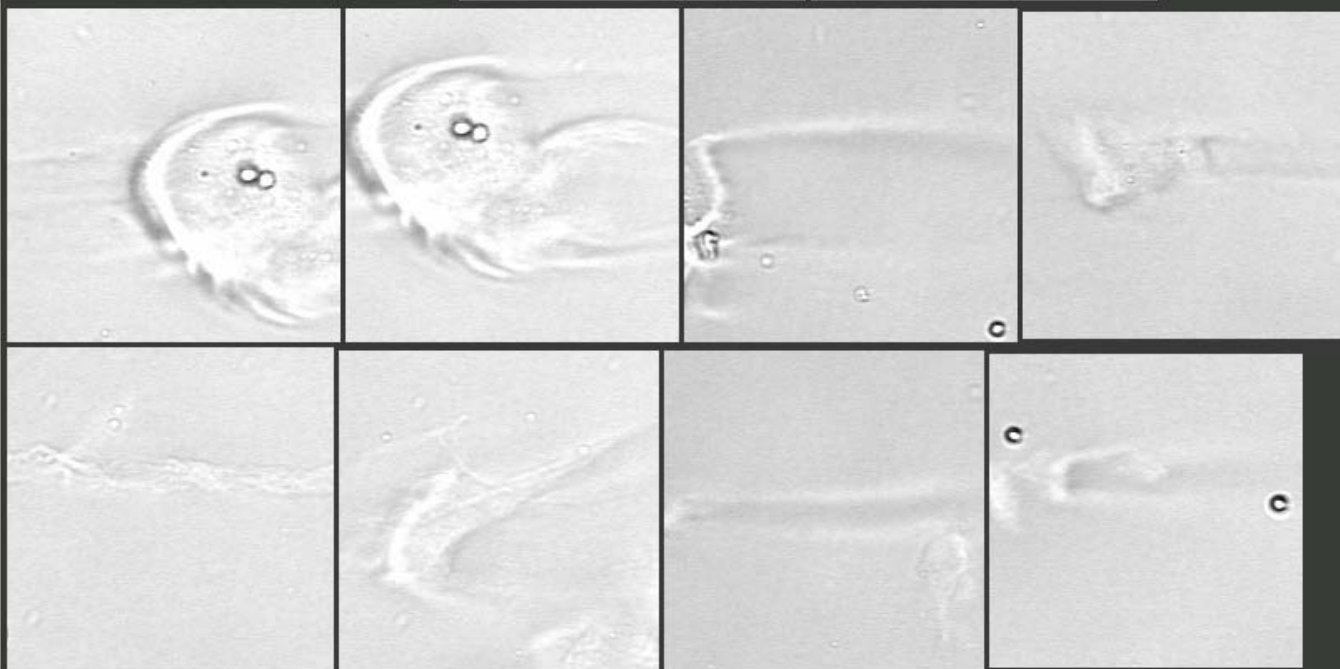
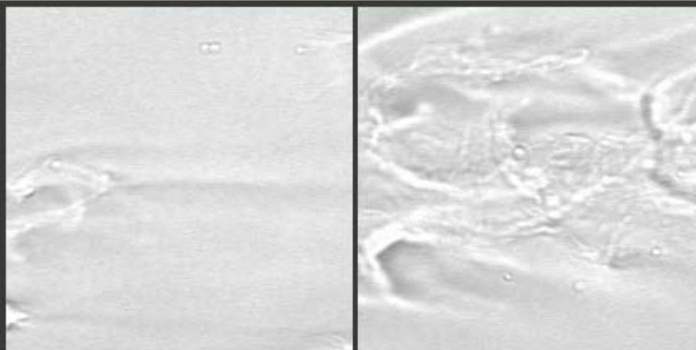
Found List (1)

Instrument

Operator: USER

UNCL

120 /HPF



WBC

BACT

RBC

DRBC

SQEP

Crystals...

WBCC

Casts...

NSE

Others...

ART

Info...

<<Released>>

011093

2010-03-11 14:46:00

4/6

1:1

All Small Particles: 4422/uL

	GLU	Normal
H	PRO	+1
	BIL	-
	URO	Normal
	PH	6.0
H	BLD	+2
H	KET	+1
	IIIIT	-
H	LEU	+
	CLA	Clear
	SPGR	>1.050
	COL	Yellow

Results

Print Screen

STANDBY

Specimens

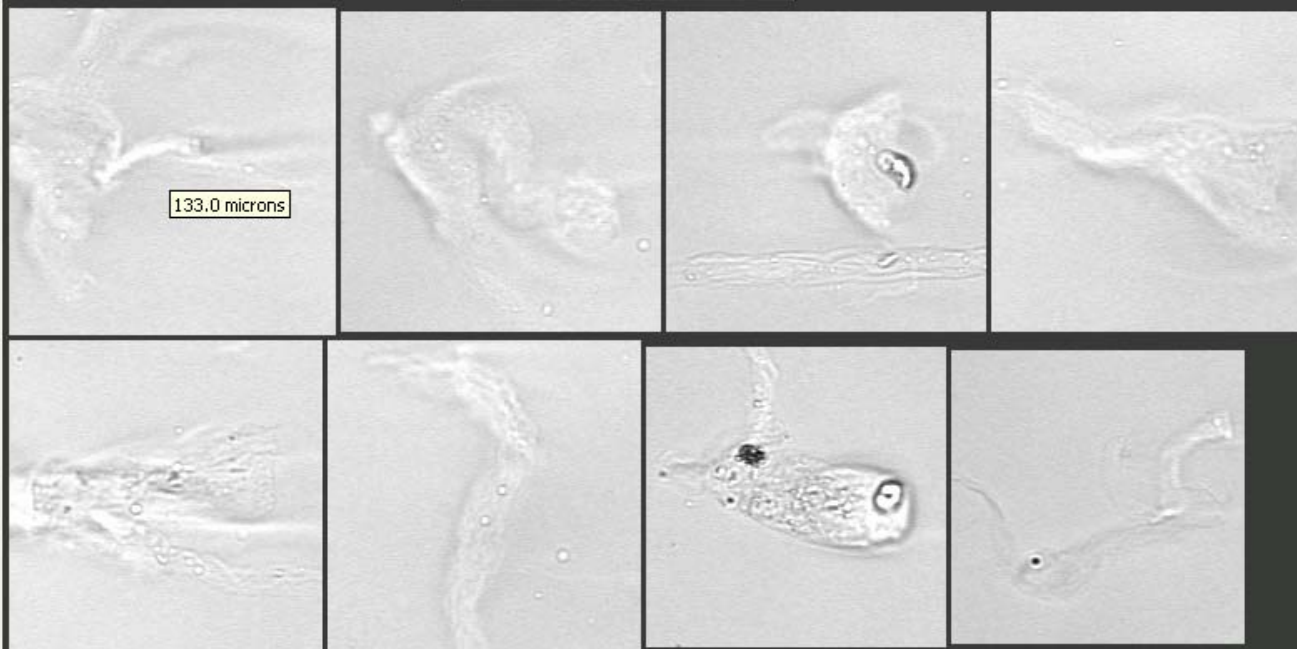
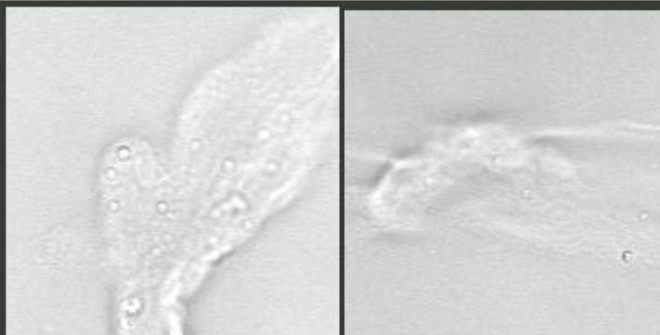
Work List (33)

Instrument

Operator: user

UNCL

115 /uL



WBC

BACT

RBC

DRBC

SQEP

Crystals...

WBCC

Casts...

NSE

Others...

ART

Info...

43103260405

2010-03-26 09:29:34

8/2(85)

1:1

All Small Particles: 7935/uL

SG 1.049

Results

Print Screen

Save Screen

MEASURE

MEASURE

Specimens

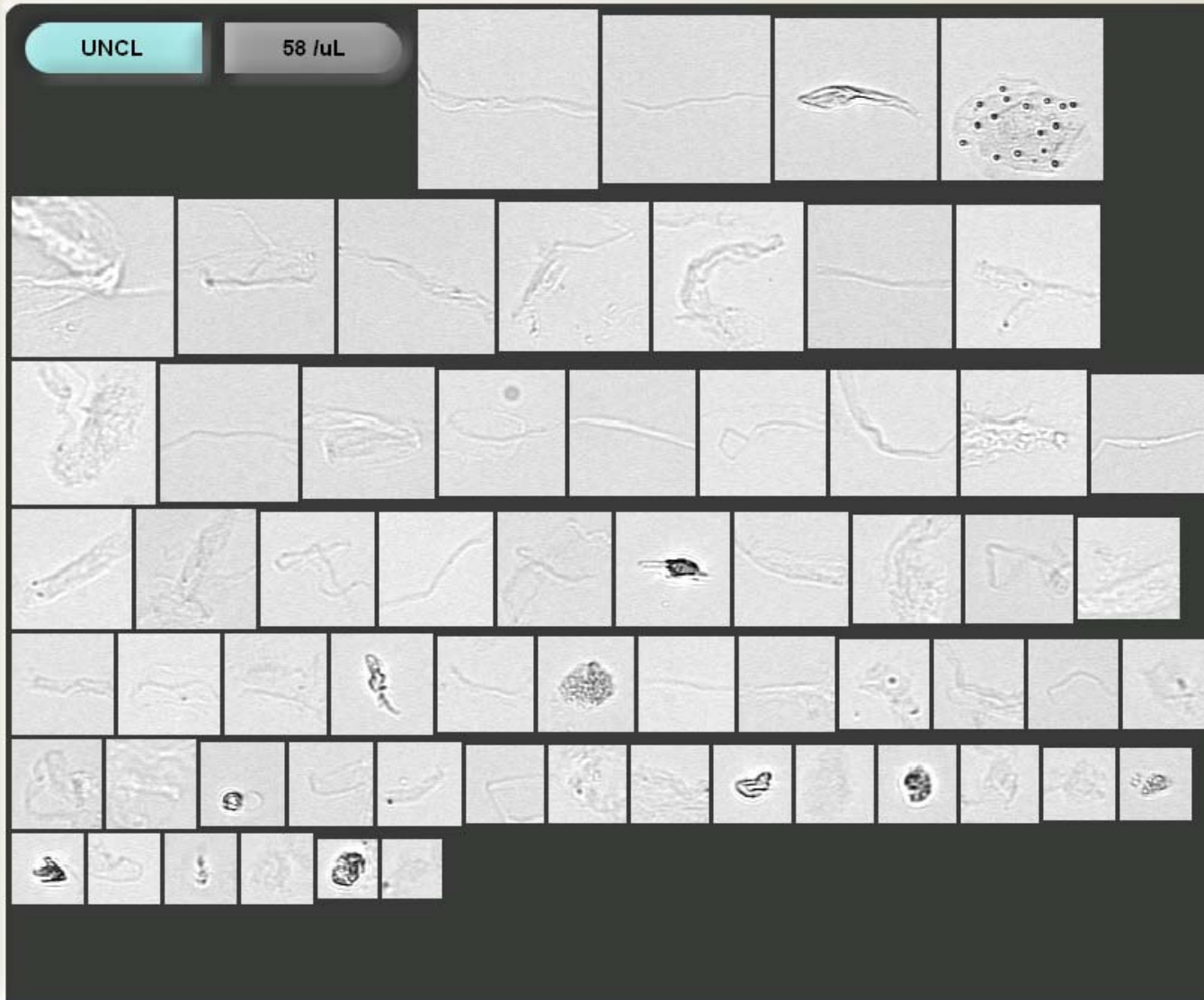
Work List (8)

Instrument

Operator: [IRIS]

UNCL

58 /uL



WBC

BACT

RBC

DRBC

SQEP

Crystals...

WBCC

Casts...

NSE

Others...

ART

Info...

981009D218

2009-10-09 09:45:57

5/8(714)

1:1

All Small Particles: 3938/uL

H	GLU	500 mg/dL
	PRO	Negative
	BIL	Negative
	URO	Normal
	PH	5.0
	BLD	Negative
	KET	Negative
	MIT	Negative
	LEU	Negative
	CLA	Slightly-Cloudy
	SPGR	1.022
	COL	Light-Yellow
	ASA	Negative

Results

Print Screen

Save Screen

MEASURE

Specimens

Work List (6)

Instrument

WBC

1 /HPF



?



WBC

BACT

RBC

Crystals...

SQEP

Casts...

WBCC

Others...

NSE

ART

Info...

3003534681

2009-03-24 11:03:43

6/1(2532)

1:1

All Small Particles: 1475/uL

Results

STANDBY

STANDBY

Specimens

Found List (13)

Instrument

Operator: user

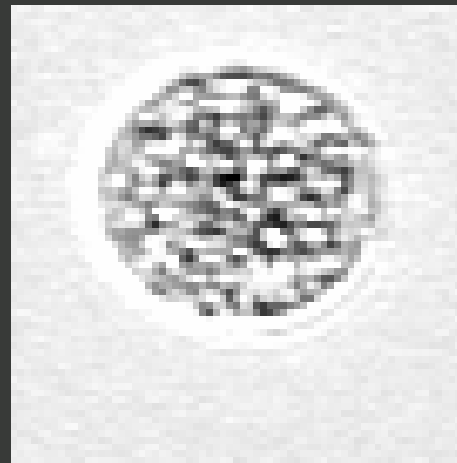
OVFB

<1 /HPF



43.4 microns

OVFB



43.4 microns



WBC

BACT

RBC

DRBC

SQEP

Crystals...

WBCC

Casts...

NSE

Others...

ART

Info...

REEP

TREP

HYST

BYST

MUCS

SPRM

RBCC

TRCH

OVFB

FAT

Results

Print Screen

Save Screen

尿液檢驗完全自動化



尿沉渣報告項目完整12項



全部符合CLSI GP16-A3 Guideline

影像佐證報告，完全符合實證醫學

內容若
有錯誤
請予指
正



Thank You Q & A