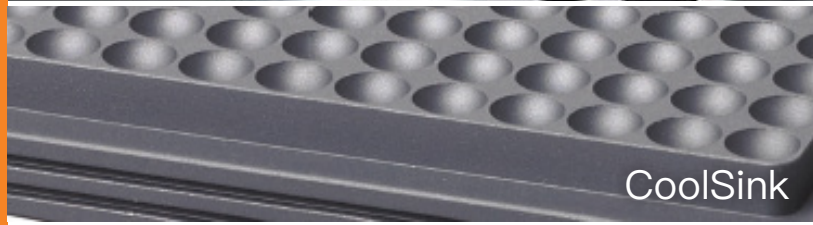
CORNING

# Sample Cooling

冷卻冷凍系統

# and Heating Systems

樣品加熱系統

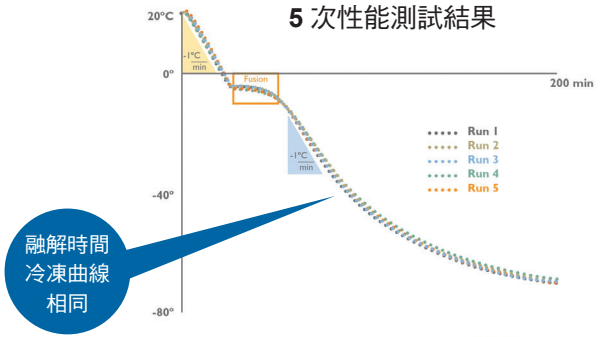


UNIMED 騰達行 0800-211-819

# CoolCell 細胞凍存盒

- 專利技術：專利鋁合金，微對流散熱技術，導冷熱快，散熱慢
- 不需預冷，不需填充 isopropanol，提高細胞存活率
- 穩定降溫：於 -80℃ 冰箱中可 1℃ / min 降溫
- 最快只需 4 小時即可將細胞冷凍小管移置液態氮中
- 專利冷凍盒，不會凍傷雙手

**5 次性能測試結果**



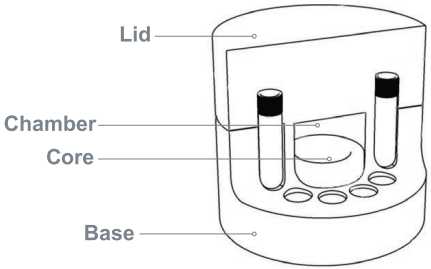
### CoolCell LX Cell Freezing Containers

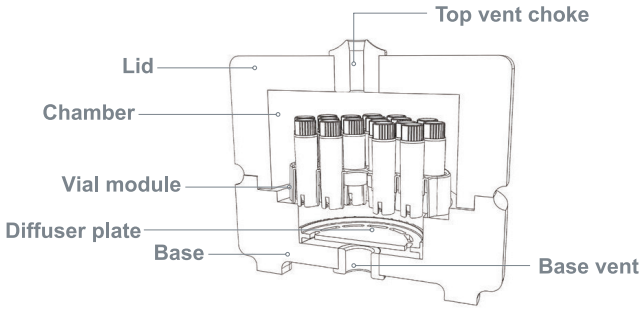
| Cat. No. | Description | Color | Dimensions |
|---|---|---|---|
| 432001 | CoolCell LX, Cell Freezing Container, for 12 x 1ml or 2ml cryogenic vials | | Diam 11.7 x H 10.9 cm |
| 432002 | CoolCell LX, Cell Freezing Container, for 12 x 1ml or 2ml cryogenic vials | | Diam 11.7 x H 10.9 cm |
| 432003 | CoolCell LX, Cell Freezing Container, for 12 x 1ml or 2ml cryogenic vials | | Diam 11.7 x H 10.9 cm |
| 432004 | CoolCell LX, Cell Freezing Container, for 12 x 1ml or 2ml cryogenic vials | | Diam 11.7 x H 10.9 cm |
| 432005 | CoolCell 5ml LX, Cell Freezing Container, for 12 x 3.5ml to 5ml cryogenic vials | | Diam 9.5 x H 14.5 cm |

### CoolCell FTS30 High-Capacity Cell Freezing Containers

| Cat. No. | Description | Color | Dimensions |
|---|---|---|---|
| 432006 | CoolCell FTS30, Cell Freezing container, for 30 x 1ml or 2ml cryogenic vials | | Diam 16.5 x H 11.5 cm |
| 432007 | CoolCell FTS30, Cell Freezing container, for 30 x 1ml or 2ml cryogenic vials | | Diam 16.5 x H 11.5 cm |
| 432008 | CoolCell FTS30, Cell Freezing container, for 30 x 1ml or 2ml cryogenic vials | | Diam 16.5 x H 11.5 cm |
| 432009 | CoolCell FTS30, Cell Freezing container, for 30 x 1ml or 2ml cryogenic vials | | Diam 16.5 x H 11.5 cm |

# How It Works




**CoolCell® LX,** in combination with a -80℃ freezer, will provide the freezing rate of -1℃ /minute that is ideal for cryopreservation of most cells and cell lines. Using a combination of uniform-density crosslinked polyethylene foam, a solid state core, and radial vial symmetry, freezing profiles are consistent and reproducible. It is important to fully load CoolCell containers prior to freezing. Foam is non-absorbent and will impose negligible change in the freezer environment; thereby protecting nearby frozen samples. The low heat content also ensures that CoolCell LX containers will rapidly return to room temperature when removed from freezer.

徑向對稱核心導熱合金金屬和外層密度均勻的交聯性聚乙烯絕熱泡棉構成，保證樣品於 -80℃ 冰箱中可 1℃ /min 降溫。

CoolCell® FTS30 utilizes a solid state core and controlled microconvection technology to evenly draw in -80℃ freezer air through a bottom base vent, uniformly disperse the cold air around each vial in the central chamber and then release the thermal load from the vials through a top vent choke. The inner vial module holds 30 cryogenic vials and can be removed in one step. Each vial achieves a uniform and reproducible -1℃ /minute freezing profile and thermal profiles are highly reproducible. Due to the low thermal mass of the uniform-density cross-linked polyethylene foam container, freezing can be conducted without a rise

採用新型合金金屬和微對流技術原理，由底部孔吸入 -80℃ 冰箱的冷空氣，再均勻地擴散至內腔裡的每一個凍管周圍，熱空氣則由頂端排氣孔排出。

# CoolCell 與傳統細胞漸凍盒使用差異

| CoolCell Container | | Isopropanol (IPA) Container |
|---|---|---|
| 無異丙醇<br>• 無液體<br>• 不需預冷<br>• 每年可省下 12 升 / 單位的異丙醇 | 勝 | 需要異丙醇<br>• 需監測使用次數<br>• 每使用 5 次要更換新的異丙醇<br>• 需先預冷 |
| 無變異性<br>• 所有凍管皆維持一致的降溫速率<br>• 徑向對稱設計可確保其再現性 | 勝 | 漸凍速率不一致<br>• 異丙醇揮發導致的變異<br>• 兩層壁以至於有兩個凍結率 |
| 無持續成本<br>• 無異丙醇購買或處置廢液問題 | 勝 | 額外費用<br>• 需更換和補充新的異丙醇<br>• 處理危險廢液的問題 |
| 無卡榫的蓋子<br>• 冷凍後，人體工學蓋子很容易脱落<br>• 從 -80˚C 冷凍櫃中取出時，觸碰外盒手感不冷 | 勝 | 難以操作和打開<br>• 冷凍後，難以打開螺旋蓋<br>• 從 -80˚C 冷凍櫃中取出時，表面光滑且觸碰外盒手感冰涼 |
| 重複使用的時間迅速<br>• 5 分鐘後可再次使用 | 勝 | 重複使用的時間較長<br>• 需 > 1 小時才能再次使用 |

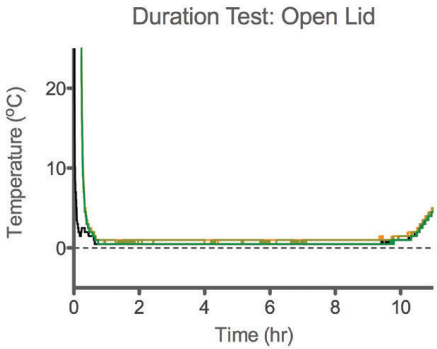
# CoolBox 冷卻冷凍保存盒

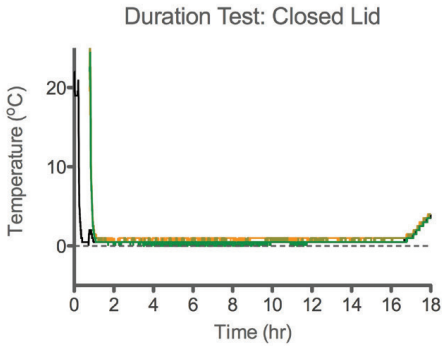
- 輕便・易攜帶・不會打破
- 多種溫控模式，長時間保溫

開蓋保冷 **10** 小時

密封保冷 **16** 小時

| 溫度範圍 | 冷卻來源 | 開蓋 | 密閉 |
|---|---|---|---|
| 0.5 to 4℃ | XT Cooling Core | > 10 hr | > 16 hr |
| -20 to 0℃ | XT Freezing Core | > 5 hr | > 8 hr |
| -78℃ | 200ml Dry Ice | > 4 hr | > 5 hr |

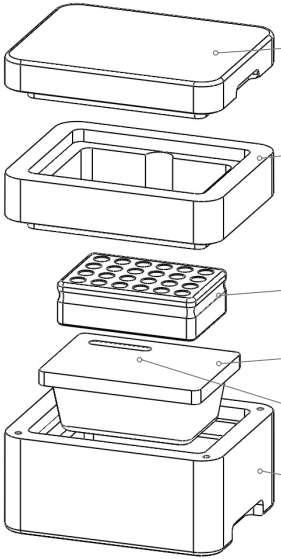



Cooling Core 可讓樣本維持在 0.5 ～ 4℃；
開蓋情況下，可保冷 10 小時；密閉情況下，則可保冷長達 16 小時。

## How It Works

- Freeze the XT Cooling Core in -20℃ freezer
- Place frozen core in base
- Rest CoolRack or CoolSink module on core
- Module will equilibrate and maintain temperature via thermo-conductivity



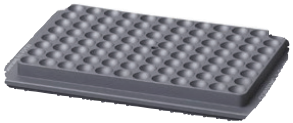
# CoolRack / CoolSink / ThermalTray
# 合金金屬管架 / 底座 / 平台

- ■ 專利技術：專利鋁合金・微對流散熱技術，導冷熱快，散熱慢
- ■ 使用範圍廣：乾冰、液態氮、水浴槽皆能使用 ( 適用 -196℃ ～ >100℃ )
- ■ 精準控溫：每個樣品槽溫差能控制在 ±0.1℃
- ■ 環境整潔：樣品擺放整齊、不再找不到樣品，不直接接觸冰塊、不再濕答答
- ■ 提高再現性：升降溫速度一致，提高實驗再現性
- ■ 可使用高溫高壓滅菌或漂白水、酒精、消毒劑等進行消毒
- ■ 提供三種模式選擇：CoolRack (for Tube)、CoolSink (for Plate)、ThermalTray ( 工作檯 )

## 三種模式可選擇

**CoolRack (for tube)**

**CoolSink (for plate)**



**ThermalTray ( 工作檯 )**

# 使用範圍廣

**碎冰 On Ice**

CoolRack equilibrates to <4°C within 90 seconds*

**乾冰 On Dry Ice**

CoolRack equilibrates to -78°C in 7 minutes*

**液態氮 In Liquid Nitrogen**

CoolRack equilibrates to approx. -140°C in 15 minutes*

**水浴槽 In Water Bath**

CoolRack on ThermalTray HP for heating or thawing

* Average cooling rate from room temperature

# 孔內溫度分布差異小，有效控溫，降低樣品汙染

Non-uniform Plate Cooling with Crushed Ice

Final equilibrium well temperature for a 96-well flat bottom plate in direct contact with crushed ice. Colors represent 0.5°C temperature intervals of the corresponding plate wells from 4.5°C to 7.4°C.

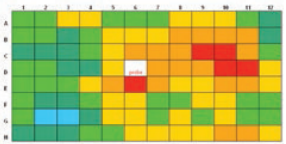


Plate directly on crushed ice, the plate does not reach 4°C in any of the wells and well-to-well temperature is uneven.

| | |
|---|---|
| 7.0-7.4 | |
| 6.5-6.9 | |
| 6.4-6.4 | |
| 5.5-5.9 | |
| 5.0-5.4 | |
| 4.5-4.9 | |
| 4.0-4.4 | |
| 3.5-3.9 | |
| 3.0-3.4 | |
| 2.5-2.9 | |

Uniform Plate Cooling with Corning CoolSink XT 96F Module

Corning CoolSink XT 96F on ice. Colors represent 0.5°C temperature intervals of the corresponding plate wells ranging from 2.5°C to 4.4°C. The white cell represents the well that was fitted with the thermocouple probe.

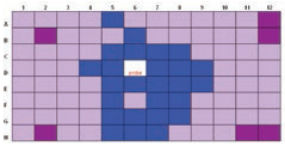


Plate placed on Corning CoolSink module and then placed on ice shows more uniform well-to-well temperature and all wells at or below 4°C. (Blue center plate wells are slightly warmer due to curvature of the underside of the plate).

Published in Biotechniques, November 2010.

# CoolBox + CoolRack

## 最佳組合

降低樣品汙染
維持環境及實驗品質

**Best**
CoolBox with CoolRack

**Better**
Ice bucket with CoolRack

**Good**
Ice bucket with ice

# CoolRack 合金金屬管架

## CoolRack M ( 圓柱平底 )

| Microcentifuge tube modules, For 1.5 mL and 2.0 mL tubes | | | | CoolRack 可放入數量 | |
|---|---|---|---|---|---|
| 貨號 | 品名 | Color | Dimensions (L x W x H) | CoolBox XT | CoolBox 2XT |
| 432034 | CoolRack M6 (6 wells ,Cylindrical) | | L: 6.0 x W: 4.3 x H: 3.8 cm | 4 個 | 9 個 |
| 432035 | | | | | |
| 432036 | | | | | |
| 432037 | CoolRack M15 (15 wells ,Cylindrical) | | L: 10.2 x W: 6.4 x H: 3.8 cm | 1 個 | 4 個 |
| 432038 | | | | | |
| 432039 | | | | | |
| 432040 | CoolRack M24 (24 wells ,Cylindrical) | | L: 12.8 x W: 8.5 x H: 3.8 cm | 1 個 | 2 個 |
| 432041 | CoolRack M30 (30 wells ,Cylindrical) | | L: 12 x W: 10.2 x H: 3.8 cm | - | 2 個 |
| 432042 | | | | | |
| 432043 | | | | | |
| 432044 | CoolRack M90 (90 wells ,Cylindrical) | | L: 26.8 x W: 11.2 x H: 3.8 cm | - | - |
| 432045 | CoolRack M96ID (96 wells ,Cylindrical) | | L: 25.4 x W: 15.2 x H: 3.8 cm | - | - |

## CoolRack M-PF ( 錐底 )

| Microcentifuge tube modules, For conical 500ul and 1.5 mL tubes | | | | CoolRack 可放入數量 | |
|---|---|---|---|---|---|
| 貨號 | 品名 | Color | Dimensions (L x W x H) | CoolBox XT | CoolBox 2XT |
| 432046 | CoolRack CF30-PF 500ul (30 wells, Conical) | | L: 12 x W: 10.2 x H: 3.8 cm | - | 2 個 |
| 432047 | CoolRack CF15-PF 1.5ml (15 wells, Conical) | | L: 10.2 x W: 6.4 x H: 3.8 cm | 1 個 | 4 個 |
| 432048 | CoolRack CF30-PF 1.5ml (30 wells, Conical) | | L: 12 x W: 10.2 x H: 3.8 cm | - | 2 個 |

# CoolRack 合金金屬管架

## CoolRack CF ( 圓柱平底 )

| Cryovial and FACS tube modules | | | | CoolRack 可放入數量 | |
|---|---|---|---|---|---|
| 貨號 | 品名 | Color | Dimensions (L x W x H) | CoolBox XT | CoolBox 2XT |
| 432049 | CoolRack CF15 (15 wells ,Cylindrical) | | L: 10.2 x W: 6.4 x H: 3.8 cm | 1 個 | 4 個 |
| 432050 | CoolRack XT CFT24 (24 wells ,Cylindrical)<br>*has "gripping" wells for one-hand vial opening/closing | | L: 12.8 x W: 8.5 x H: 3.8 cm | 1 個 | 2 個 |
| 432052 | CoolRack CFT30 (30 wells ,Cylindrical)<br>*has "gripping" wells for one-hand vial opening/closing | | L: 12 x W: 10.2 x H: 3.8 cm | - | 1 個 |
| 432051 | CoolRack CF45 (45 wells ,Cylindrical) | | L: 17.3 x W: 9.7 x H: 3.8 cm | - | 1 個 |

## CoolRack XT ( 錐底 )

| Plate, strip well or tube modules | | | | CoolRack 可放入數量 | |
|---|---|---|---|---|---|
| 貨號 | 品名 | Color | Dimensions (L x W x H) | CoolBox XT | CoolBox 2XT |
| 432040 | CoolRack XT M24 (24 wells ,Conical) | | L: 12.8 x W: 8.5 x H: 3.8 cm | 1 個 | 2 個 |
| 432053 | CoolRack XT PCR96 (12 strip wells ,Tapered) | | L: 12.8 x W: 8.5 x H: 2.5 cm | | |
| 432055 | CoolRack XT PCR384 (384-well plate ,Conical) | | L: 12.8 x W: 8.5 x H: 1.8 cm | | |
| 432054 | CoolRack XT M-PCR (12 well ,Cylindrical + 6 strip wells ,Tapered) | | L: 12.8 x W: 8.5 x H: 3.8 cm | | |
| 432060 | CoolRack XT 5ml (5.0ml centrifuge tube ,Conical) | | L: 12.7 x W: 8.6 x H: 5.0 cm | | |

## CoolRack 96 ( 圓柱平底 )

| 2D barcode storage tube modules | | | | CoolRack 可放入數量 | |
|---|---|---|---|---|---|
| 貨號 | 品名 | Color | Dimensions (L x W x H) | CoolBox XT | CoolBox 2XT |
| 432056 | CoolRack 96x0.5ml 500 ul (96 wells ,Cylindrical ) | | L: 13.1 x W: 8.9 x H: 3.6 cm | 1 個 | 2 個 |
| 432057 | CoolRack 96x1ml 1.4ml (96 wells ,Cylindrical ) | | L: 13.2 x W: 8.9 x H: 4.3 cm | | |

## CoolRack SV ( 圓柱平底 )

| Cell therapy injectable ampule modules | | | | CoolRack 可放入數量 | |
|---|---|---|---|---|---|
| 貨號 | 品名 | Color | Dimensions (L x W x H) | CoolBox XT | CoolBox 2XT |
| 432058 | CoolRack SV2 (12 wells ,Cylindrical) | | L: 12.7 x W: 8.6 x H: 3.8 cm | 1 個 | 2 個 |
| 432059 | CoolRack SV10 (12 wells ,Cylindrical) | | L: 12.7 x W: 8.6 x H: 3.8 cm | | |

## CoolRack Tall tube

| Tall tube modules | | | | CoolRack 可放入數量 | |
|---|---|---|---|---|---|
| 貨號 | 品名 | Color | Dimensions (L x W x H) | CoolBox XT | CoolBox 2XT |
| 432068 | CoolRack L *Thermo-conductive base and insulative exterior | | L: 13.7 x W: 9.5 x H: 11.8 cm | 1 個 | 2 個 |
| 432061 | CoolRack 15ml centrifuge tube (9 well ,Cylindrical) | | L: 8.9 x W: 8.9 x H: 10.7 cm | | |
| 432062 | CoolRack 50ml centrifuge tube (4 well ,Cylindrical) | | L: 8.9 x W: 8.9 x H: 10.7 cm | | |
| 432063 | CoolRack 250ml-PF centrifuge tube (1 well ,Conical) | | L: 8.9 x W: 8.9 x H: 14 cm | | |
| 432064 | CoolRack 250ml centrifuge tube (1 well ,Cylindrical) | | L: 8.9 x W: 8.9 x H: 7.2 cm | | |

## CoolRack V ( 圓柱平底 )

| Blood collection tube modules | | | | CoolRack 可放入數量 | |
|---|---|---|---|---|---|
| 貨號 | 品名 | Color | Dimensions (L x W x H) | CoolBox XT | CoolBox 2XT |
| 432069 | CoolRack LV 13 or 16mm blood tubes (12 well ,Cylindrical) *Thermo-conductive base and insulative exterior | | L: 13.7 x W: 9.5 x H: 9.6 cm | 1 個 | 2 個 |
| 432065 | CoolRack VS13 13x75mm blood tubes (9 well ,Cylindrical) | | L: 8.9 x W: 8.9 x H: 6.1 cm | | |
| 432067 | CoolRack V13 13x100mm blood tubes (9 well ,Cylindrical) | | L: 8.9 x W: 8.9 x H: 8.4 cm | | |
| 432066 | CoolRack V16 16x100mm blood tubes or 5ml cryogenic vials (9 well ,Cylindrical) | | L: 8.9 x W: 8.9 x H: 8.4 cm | | |

# CoolSink 合金金屬底座

## CoolSink XT

| Automation-Friendly plate modules | | | | CoolSink 可放入數量 | |
|---|---|---|---|---|---|
| 貨號 | 品名 | Color | Dimensions (L x W x H) | CoolBox XT | CoolBox 2XT |
| 432070 | CoolSink XT 96F (6/12/24/48/96/384 well Flat-bottom plate) | | L: 12.8 x W: 8.5 x H: 1.7 cm | 1 個 | 2 個 |
| 432071 | CoolSink XT 96U (96 well U-bottom plate) | | L: 12.8 x W: 8.5 x H: 1.7 cm | | |

## CoolSink LX55

| For 55mL reagent reservoirs | | | | CoolSink 可放入數量 | |
|---|---|---|---|---|---|
| 貨號 | 品名 | Color | Dimensions (L x W x H) | CoolBox XT | CoolBox 2XT |
| 432072 | CoolSink LX55 (55ml reagent reservoirs) | | L: 14.6 x W: 6.4 x H: 3.5 cm | 1 個 | 1 個 |

# ThermalTray 合金金屬平台

**Thermo-conductive platforms**

| 貨號 | 品名 | Color | Dimensions (L x W x H) | ThermalTray 可放入數量 | |
|---|---|---|---|---|---|
| | | | | CoolBox XT | CoolBox 2XT |
| 432073 | ThermalTray SLP (low-profile for liquid nitrogen) | | L: 28 x W: 14 x H: 3.2 cm | - | - |
| 432074 | ThermalTray LP (medium-profile for ice) | | L: 28 x W: 14 x H: 5.1 cm | | |
| 432075 | ThermalTray HP (high-profile for water bath) | | L: 28 x W: 14 x H: 8.6 cm | | |

# 相關配件

凍管專用夾

Cryogenic vial grippers feature a unique design to grasp internal- or external-thread cryogenic vials. Easily sort or move vials while maintaining sterility and protecting fingers from frozen vials, dry ice and liquid nitrogen. 5 per pack.

| 貨號 | 品名 | Color |
|---|---|---|
| 432136 | CryoCeps Cryogenic Vial Gripper | Multi-color |

## 多规格冰桶

Non-toxic, recyclable ethyl-vinyl acetate (EVA) foam containers for use with ice, dry ice, liquid nitrogen, alcohol slurries. Will not sweat, leak or skid on bench.

| | | Dimensions (L x W x H) | Green | Blue | Red | Orange | Lime Green | Pink | Purple |
|---|---|---|---|---|---|---|---|---|---|
| | Mini 1L Ice Pan | 15.9 x 15.9 x 9.5 cm | 432115 | 432116 | 432117 | 432118 | 432119 | 432120 | 432121 |
| | Midi 4L Ice Pan | 31.1 x 22.2 x 11.4 cm | 432103 | 432104 | 432105 | 432106 | 432107 | 432108 | 432109 |
| | Midi 4L Ice Pan with Lid | 35.0 x 22.5 x 11.4 cm | | 432110 | | 432111 | 432112 | 432113 | 432114 |
| | Maxi 9L Ice Pan | 40.6 x 31.8 x 11.4 cm | 432093 | 432094 | 432095 | 432096 | 432097 | 432098 | 432099 |
| | Maxi 9L Ice Pan with Lid | 44.5 x 32.5 x 11.4 cm | | 432100 | | | 432101 | | 432102 |
| | Round 2.5L Ice Bucket with Lid | Top diameter: 24.1 cm, Height : 12.1 cm | 432130 | 432129 | 432131 | 432132 | 432133 | 432134 | 432135 |
| | Round 4L Ice Bucket with Lid | Top diameter: 26.0 cm, Height : 18.4 cm | 432122 | 432123 | 432124 | 432125 | 432126 | 432127 | 432128 |

## Step 1 Choose CoolBox XT

#432021 #432023
#432022 #432024

內：14.0 x 9.4 x 9.9 cm
外：20.0 x 16.0 x 15.0 cm

內含 1 個 4℃ Cooling Core

## Step 2 Choose CoolRack

### CoolRack M6

(6.0 x 4.3 x 3.8 cm)

#432034( 平底 )

#432035( 平底 )

#432036( 平底 )

### CoolRack M15 / CF15

(10.2 x 6.4 x 3.8 cm)

#432037( 平底 )

#432038( 平底 )

#432039( 平底 )

#432049( 平底 )

### CoolRack M24 / CF24

(12.8 x 8.5 x 3.8 cm)

#432040

#432050

## Step 3 Choose Accessories

## CoolRack PCR

(12.7 x 8.6 x 2.5 cm/12.7 x 8.6 x 3.8 cm)

#432053(96 well)

#432054( 平底 +PCR strips)

## CoolRack 15ml / 50ml

(8.9 x 8.9 x 10.7 cm)

#432061
(9 x 15 ml)

432062
(4 x 50 ml)

**(Requires extension collar accessory)**

## XT Extension Collar

內：14.0 x 9.4 x 7.0 cm　　外：20.0 x 16.0 x 7.0 cm

#432083

#432084

#432085

#432086

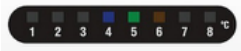
## XT Cores

內：14.0 x 9.4 x 7.0 cm　　外：20.0 x 16.0 x 7.0 cm

#432081(Cooling Core)
0.5 to 4℃

#432082(Freezing Core)
below 0℃

## Temperature Indicator




#432091(1~8℃)

## Step 1 Choose CoolBox 2XT

#432025 #432027
#432026 #432028

內：21.0 x 14.3 x 13.4 cm
外：26.5 x 20.0 x 15.0 cm

內含 2 個 4℃ Cooling Core

## Step 2 Choose CoolRack

### CoolRack M30 / CF30

(12.0 x 10.2 x 3.8 cm)

#432041( 平底 )

#432042( 平底 )

#432043( 平底 )

#432052( 平底 )

### CoolRack CF45

(17.3 x 9.7 x 3.8 cm)

#432051( 平底 )

Example 1

**M48 = 2 x M24 / CF24**

#432040 #432050

Example 2

**PCR96 + M-PCR**

#432053 #432054

## CoolRack 15ml / 50ml

(8.9 x 8.9 x 10.7 cm)

#432061
(9 x 15 ml)

432062
(4 x 50 ml)

**(Requires extension collar accessory)**

## 2XT Extension Collar

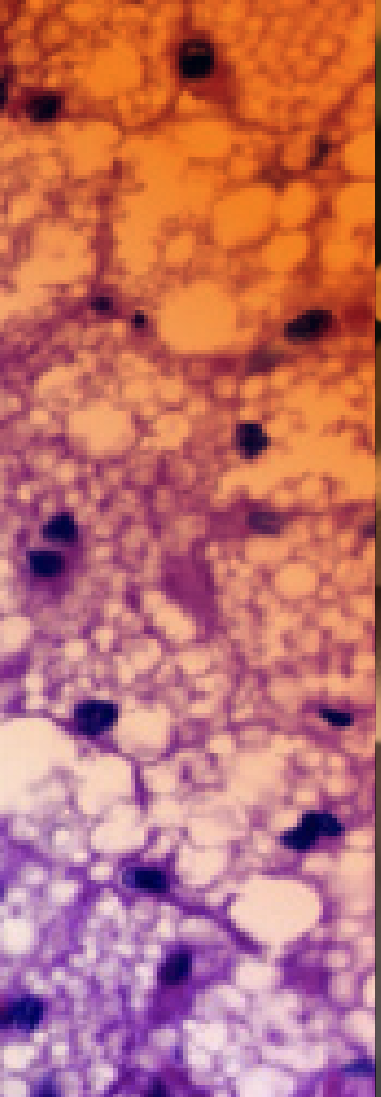
內：21.0 x 14.3 x 7.0 cm　　外：26.5 x 20.0 x 7.0 cm

#432087

#432088

#432089

#432090



CORNING | CoolRack®

CORNING

UNIMED 騰達行

0800-211-819

Unimed 騰達行

www.unimed.com.tw

台北 02-2720-2215 新竹 03-6684-586 台中 04-2463-3591 嘉義 05-2844-162 台南 06-2890-665 高雄 07-3470-143 花蓮 03-8573-757

U090428