



WOONGBEE  
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02.881.5432

# Tools for Cell & Gene Therapy

- Immune Cell Culture
- 3D & Organoids Culture
- Primary Cell / Tumor Cell



**TOCRIS**  
a biotechne brand

**R&D SYSTEMS**  
a biotechne brand

 **xcellbio**

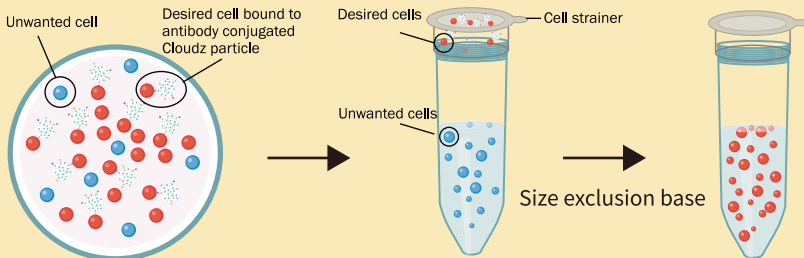
 **TheWell**  
BIOSCIENCE

**protein**simple  
biotechne

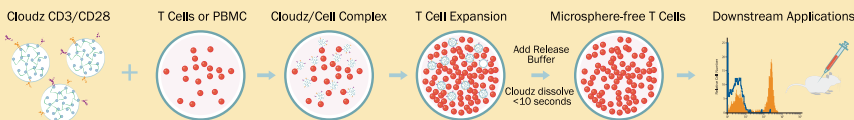


## GMP Cell Selection / Cloudz™

- Magnetic bead-Free
- GMP

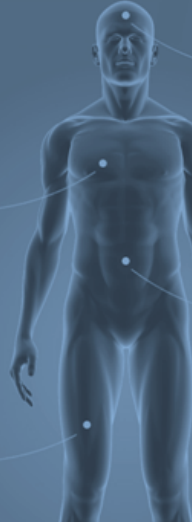
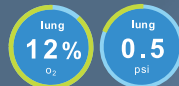


## GMP Cell Activation / Cloudz™



## The AVATAR™ Cell Incubator

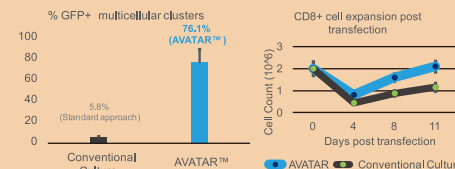
In Vivo와 유사 환경  
각 기관마다 다른 조건  
Oxygen  
Pressure(psi)



- 산소(O<sub>2</sub>)와 압력(psi) 조절
- 손쉬운 조작
- 각 기관에 맞는 primary cell 조건!
- Tumor cell도 Tumor 환경에서!!

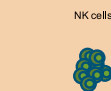
### 1. High Efficiency of Transfection

- Gene Editing을 위한 Tool
- Transfection /



### NK-mediated tumor cell killing

1. A healthy donor's NK Cells were enriched using MACS
2. NK Cells were maintained and expanded for 7 days under the following AVATAR™ culture condition



Varying pressure culture conditions for NK expansion

## 3D / Organoids Culture

### BME

- Similar to Matrigel
- Gel at 37°C
- Low Endotoxin
- Bigger Batches

### \*Organoids 전용 Matrix

- Cultrex® BME Type2 RGF
- Cultrex® BME TypeR1 RGF

### \*Tumor Spheroids 전용 Matrix

- Cultrex® BME 3D RGF

### Organoid harvesting Solution

- for sub-culture
- for biochemical analysis
- non-enzymatic method



### VitroGel 3D hydrogel

- in vivo Tumorigenesis
- 신개념 3D culture hydrogel
- Room Temp. Stable
- Cell harvest 용이
- Injectable



## Functional Assay for QC/Monitoring

\*모두 분석서비스 가능



### Quantikine® ELISAs



ELISA Gold Standard

### Luminex® Assays



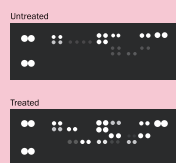
Luminex Multiplex

### Simple Plex™ Assays / ELLA



Automated ELISA

### Proteome Profiler™ Arrays

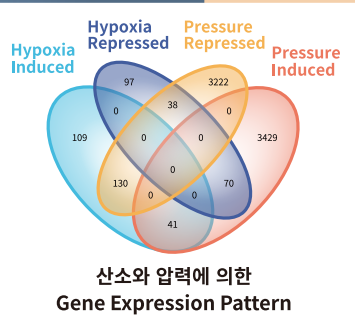


Ab Array

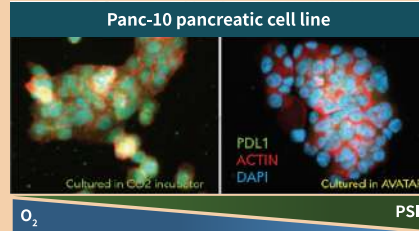
## Cell Expansion & CellXVivo®

- Immune Cell 분화 및 확장에 최적화된 Media
- 다양한 T cell, B cell, DC, NK cell 연구에 최적
- 손쉬운 Protocol + 높은 재현성
- 검증된 Protocol로 Cost & Time Saving

## Cell Control System



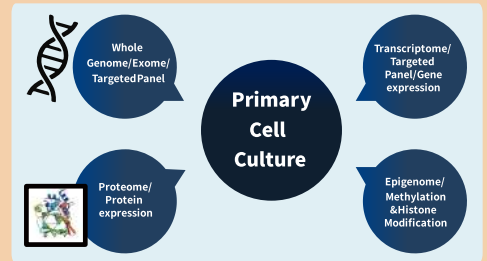
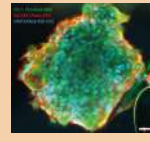
## 3. Immuno-Oncology / TME 연구



- TME에서 immune checkpoint Rc들의 발현양상 변화.
- Cold Tumor → Hot Tumor 전환연구
- Cell-Cell Communication 연구

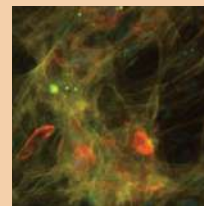
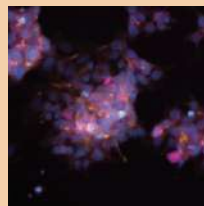
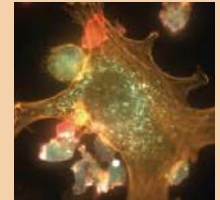
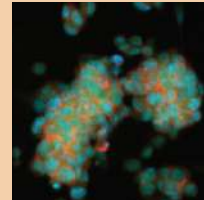
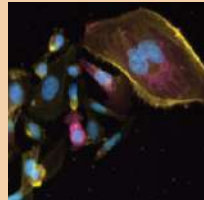
## 4. 얼려져 있던 환자샘플의 Recovery & 활용

- 환자 Sample을 이용한 다양한 연구
- Cell recovery 및 Maintenance 향상
- Expand difficult cells.



## 5. Primary Tumor Culture (in vivo mimic 환경제공)

Mimic the Tumor Microenvironment with Patient-derived Tumor Samples in Vitro



## Transduction / Transduction

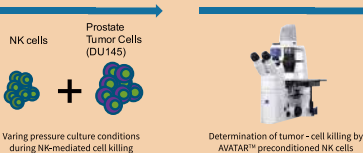
Transduction 효율 향상 ■ Cell Recovery 향상

## 2. Immune Cell Culture

- Antigen Specific Cell Expansion
- DC 및 Macrophage 분화 향상
- Cell State Control
- NK/T-mediated Tumor Cell Killing Assay

## Killing assay

3. 24 hours of NK and DU145 prostate cancer cell co-culture under the following AVATAR™ culture conditions
4. Quantification of NK-mediated tumor cell killing (brightfield-phase contrast imaging)



## Differentiation

Media & Supplement



## Proteins for Immune Cells



### Proteins

- Most referenced
- Bioactive
- High Purity
- Low endotoxin level
- GMP grade 가능

# Order Information

For AVATAR Cell Control System		
Description	Cat #	Size
Avatar Duo	1981002	2 Module
Avatar AD	1981003	4 Module
Avatar HT	1981004	6 Module HT



Cloudz™ for Cell Activation without Magnet Beads		
Description	Cat #	Size
Hyper-Act CD3/CD28	CDZ4023	1 Kit
ExCellerate Human T Cell Expansion Media, Xeno-Free(Optimized for use with the Cloudz™ T Cell Activation Kit)	CCM030	500mL



For Cell Isolation and Selection with Bead			
Description	Cat#		
<b>Magnet Reagents</b>			
MagCollect Magnet	MAG997		
MagCollect Streptavidin Ferrofluid	MAG999B		
<b>Isolation Kits (Negative)</b>	<b>Human</b>	<b>Mouse</b>	<b>Rat</b>
B cell Isolation Kit	MAGH103	MAGM204	MAGR303
CD3+ T Cell Isolation Kit	MAGH101	MAGM201	MAGR301B
Naïve CD4+ T Cell Isolation Kit	MAGH115	MAGM205	
CD4+ T Cell Isolation Kit	MAGH102	MAGM202	MAGR302B
Memory CD4+ T Cell Isolation Kit	MAGH116	MAGM206	
CD4+CD25+ Regulatory T Cell Isolation Kit	MAGH104	MAGM208	
CD8+ T Cell Isolation Kit	MAGH112	MAGM203	
Naïve CD8+ T Cell Isolation Kit		MAGM207	
CD14+ Cell Isolation Kit	MAGH105		
Natural Killer Cell Isolation Kit	MAGH109	MAGM210	

T Cell Enrichment Columns (Negative)		
Description	Human	Mouse
CD3+ T Cell Enrichment Column	HTCC	MTCC
CD4+ T Cell Enrichment Column	GCD4C-1000	MCD4C-1000
CD4+ T Cell Enrichment Column, Mini	HCD43	MCD43
CD4+/CD45RA+ Memory T Cell Enrichment Column	HCD42	
CD8+ T Cell Enrichment Column	HCD8C-1000	MCD8C-1000
CD8+/CD45RA- Memory T Cell Enrichment Column	HCD45	
CD8+/CD45RA- Naïve T Cell Enrichment Column	HCD44	

For 3D/ Organoid/ Tumor Culture		
Cat #	Description	Size
3533-001-02		1mL
3533-005-02	Cultrex Reduced Growth Factor BME, Type 2	5mL
3533-010-02		2 X5mL
3433-001-R1		1mL
3433-005-R1	Cultrex Reduced Growth Factor Basement Membrane, Type R1	5mL
3433-010-R1		2 X5mL
3445-005-01		5mL
3445-010-01	Cultrex Reduced Growth Factor 3-D BME	2 X5mL
3700-100-01	Cultrex Organoid Harvesting Solution	100mL
TWG001	VitroGel 3D Hydrogel	10mL
TWG001S	VitroGel 3D Hydrogel	2mL
TWG002	VitroGel 3D-RGD Hydrogel	10mL
TWG002S	VitroGel 3D-RGD Hydrogel	2mL

For Immune Cell Culture	
Cell 종류	Cytokines for Differentiation and Expansion
B cell	BAFF, CD40 Ligand, IFN-gamma, IL-2, IL-4, IL-10, IL-21
Dendritic Cell	Flt3-Ligand, GM-CSF, IL-3, IL-4, Thrombopoietin, TNF-alpha
Macrophages	M-CSF, IFN-gamma, IL-4, IL-13
Myeloid-derived Suppressor Cells	G-CSF, GM-CSF, IL-4, IL-6, IL-10, IL-13
NK Cell	IL-2, IL-12, IL-15, IL-18, IL-21
CIK Cell	IL-2, IFN-gamma
T Cell	IL-2, CD3 Ab, CD28 Ab
Th1 Cells	IFN-gamma, IL-2, IL-12, IL-27, IL-4 Ab, CD3 Ab, CD28 Ab
Th2 Cells	IL-2, IL-4, CD3 Ab, CD28 Ab, IFN-gamma Ab, IL-12 Ab
Th17 Cells	IL-1 beta, IL-6, IL-21, IL-23, TGF-beta1, CD3 Ab, CD28 Ab, IFN-gamma AB, IL-4 Ab
Treg Cell	IL-2, TGF-beta1, CD3 Ab, CD28 Ab

GMP Protein	Cat #		
	Human	Mouse	Rat
IL-1 beta	201-LB	401-ML	501-RL
IL-2	202-IL	402-ML	502-RL
IL-4	204-IL, 6507-IL	404-ML	504-RL
IL-6	206-IL, 7270-IL	406-ML	506-RL
IL-10	1064-IL	417-ML	
IL-12	219-IL, 10018-IL	419-ML, 10051-ML	1760-RL
IL-13	213-ILB	413-ML	1945-RL
IL-15	247-ILB	447-ML	
IL-18	9124-IL, B001-5	9139-IL	B002-5
IL-21	8879-IL	594-ML	
IL-23	1290-IL	1887-ML	3136-RL
IL-27	2526-IL	2799-ML	
IFN-gamma	285-IF, 10067-IF	485-MI	585-IF
TNF-alpha	210-TA	410-MT, 410-TRNC	510-RT
TGF-beta1	7754-BH, 240-B	7666-MB	
Thrombopoietin	288-TPE, 288-TPN	488-TO	7864-TP
M-CSF	216-MC, 216-MCC	416-ML	
GM-CSF	215-GM, 7954-GM	415-ML	518-GM
G-CSF	214-CS	414-CS	
CD40 Ligand/TNFSF5	6420-CL, 2706-CL	8230-CL	8414-CL
BAFF/Blys/TNFSF13B	7537-BF, 2149-BF	8876-BF	
Flt-3 Ligand	308-FK, 308-FKN	427-FL	



CellXVivo for Immune Cell			
Description	Cat#		
<b>Culture Media</b>			
StemXVivo Serum-Free Human DC Base Media	<ul style="list-style-type: none"> <li>Cell Type Specific Media</li> <li>각 Cell에 최적화된 Media &amp; Supplement</li> </ul>	CCM003	
StemXVivo Serum-Free Human T Cell Base Media	<ul style="list-style-type: none"> <li>R&amp;D의 Good Quality Products 이용</li> <li>Ready to Use</li> </ul>	CCM010	
<b>Expansion Kits</b>		<b>Mouse</b>	<b>Human</b>
Human B Cell Expansion Kit	<ul style="list-style-type: none"> <li>완벽히 optimization 된 Kit</li> </ul>		CDK005
Human CIK Expansion Kit			CDK014
Human NK Cell Expansion Kit			CDK015
<b>Differentiation Kits</b>		<b>Mouse</b>	<b>Human</b>
M1 Macrophage Differentiation Kit	<ul style="list-style-type: none"> <li>실험 간의 variation 최소화</li> </ul>		CDK012
M2 Macrophage Differentiation Kit			CDK013
Monocyte-derived DC Differentiation Kit	<ul style="list-style-type: none"> <li>R&amp;D의 Good Quality Proteins 제공</li> </ul>		CDK004
Dendritic Cell Differentiation Kit		CDK008	
Th1 Cell Differentiation Kit	<ul style="list-style-type: none"> <li>간단하고 손쉬운 검증된 Protocol</li> </ul>	CDK018	CDK001
Th2 Cell Differentiation Kit		CDK019	CDK002
Th17 Cell Differentiation Kit		CDK017	CDK003C
Treg Cell Differentiation Kit		CDK007	CDK006