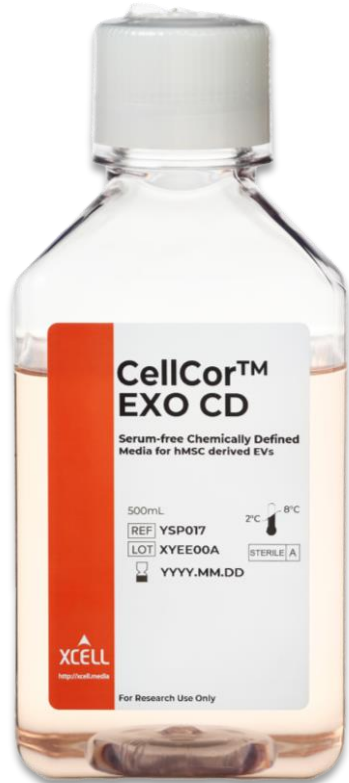


Distributed by:
CliniSciences Group



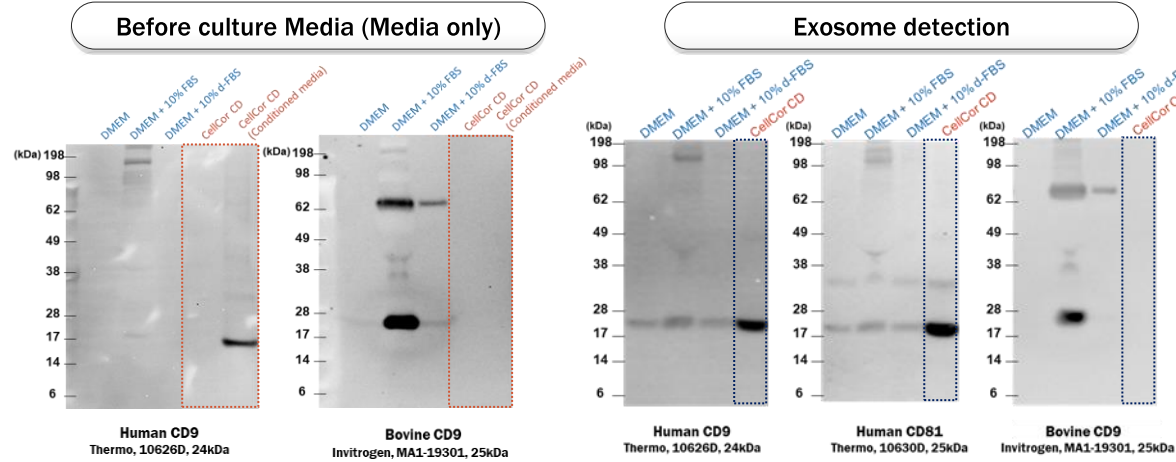
<p>Scope</p>	<ul style="list-style-type: none"> • Mass production, research and drug development of exosomes
<p>Superiority</p>	<ul style="list-style-type: none"> • Eliminate more than 95% of impurities • Convenience for culture
<p>Application</p>	<ul style="list-style-type: none"> • Adipose derived MSC • Bone marrow derived MSC • Umbilical cord derived MSC • Various origin MSC
<p>Competitiveness</p>	<ul style="list-style-type: none"> • Stability of cell • Safety, homogeneity

Comparison of culture test with FBS contained medium

Distributed by:

CliniSciences Group

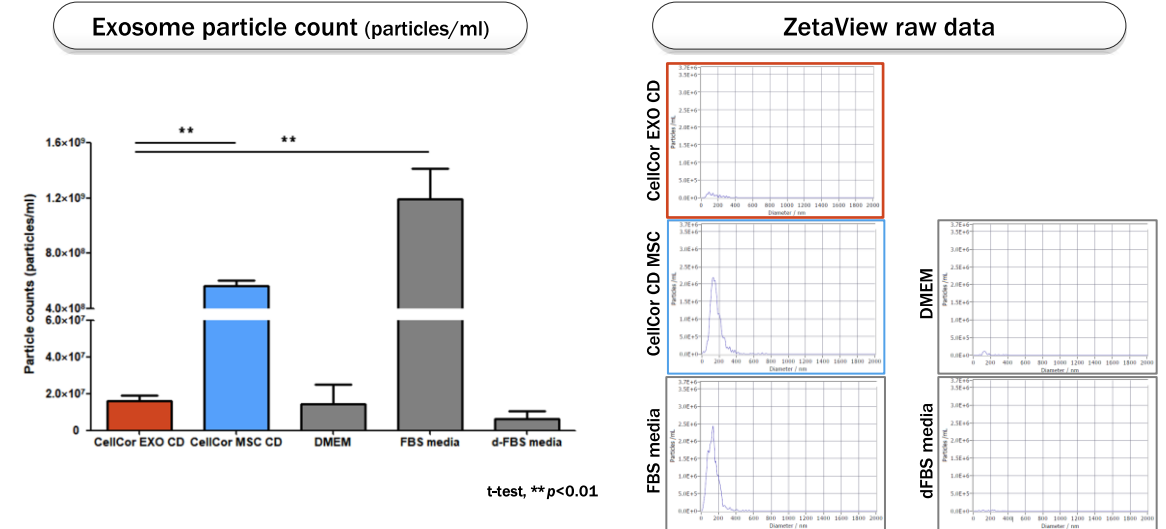
Exosome specific marker



- Experimental Method: MSC were incubated in each media for 3 days, and then exosome was isolated and Western blot was performed.
- Measuring and analysis instrument: Tangential Flow Filtration (TFF, PALL) / iBright™ CL1000 Imaging System (Invitrogen)

❖ CellCor EXO CD did not contain bovine-derived exosomes, and showed the highest exosome production

Purity



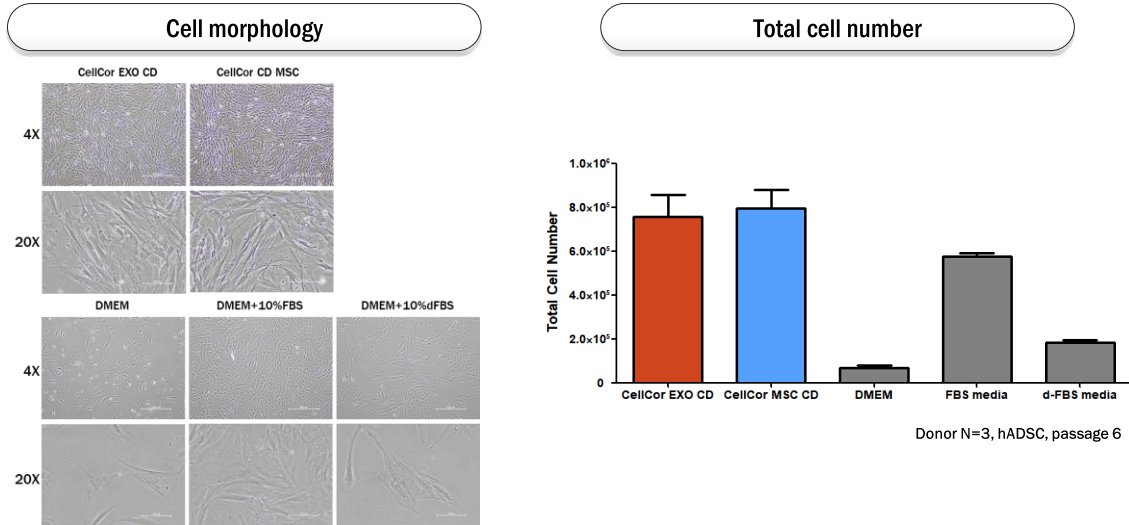
- Experimental Method: Measure the number of particles in before culture medium using ZetaView.
- Measuring and analysis instrument: Zetaview (Particle metrix)

❖ CellCor EXO CD was confirmed to have the highest purity as it contained the lowest number of particles.

Comparison of culture test with FBS contained medium

Distributed by:
CliniSciences Group

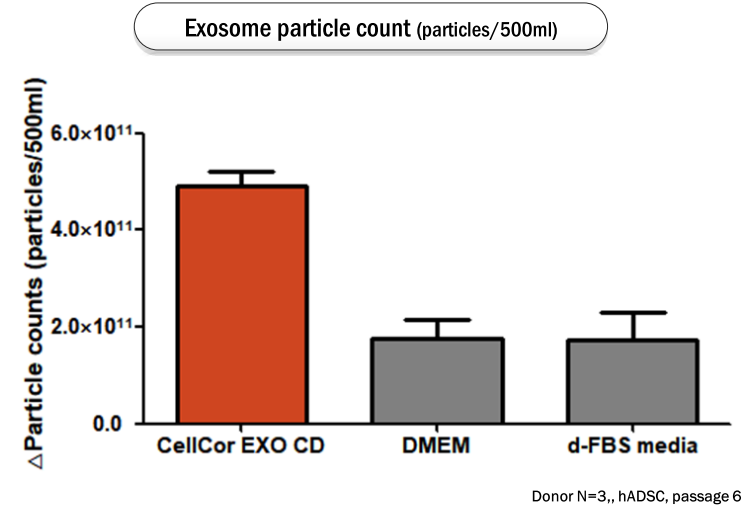
Cell Proliferation



- Experimental Method: MSC were seeded 1x10⁵ cells on T25 flask, and cultured during 5 days. The number of MSCs were counted.
- Measuring and analyzing instrument: NucleoCounter® NC-250 (ChemoMetec)

- ❖ More cells were proliferated with CellCor EXO CD in the same culture environment.
- ❖ Proliferation was about 3.8 times better than d-FBS media.

Exosome production



- Experimental Method: MSC were seeded 1x10⁵ cells on T25 flask, and cultured during 5 days. The number of MSC-derived exosomes was counted.
- Measuring and analyzing instrument: NucleoCounter® NC-250 (ChemoMetec), Zetaview (Particle metrix)

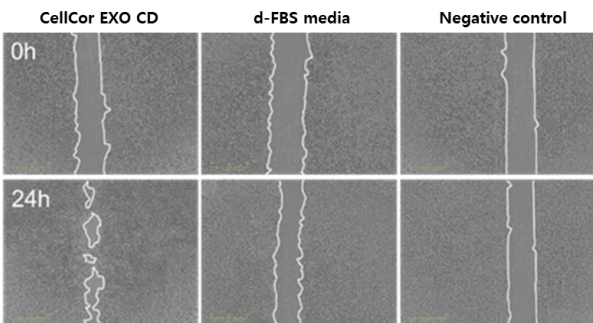
- ❖ It was confirmed that the production of exosomes from CellCor EXO CD is superior to that of each medium.
- ❖ It was verified that the production volume is about 2.5 times (or more) and is a very efficient medium for mass production.

Comparison of culture test with FBS contained medium

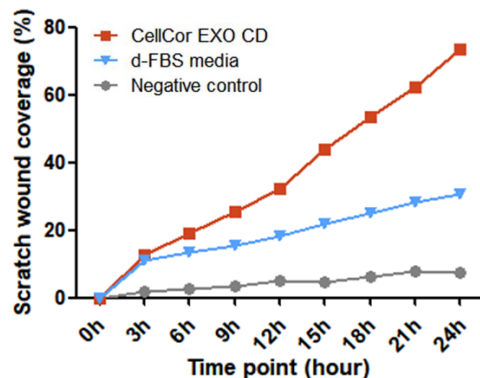
Distributed by:
CliniSciences Group

Wound healing assay

Cell morphology



Wound Coverage

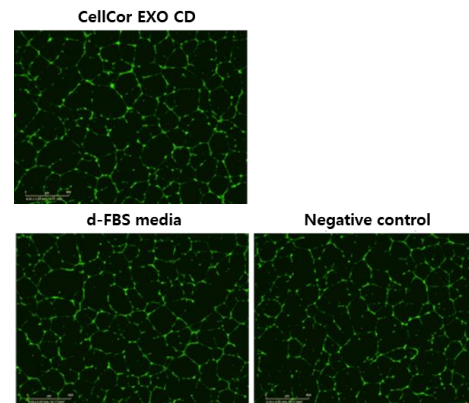


- Experimental Method: HaCaT cell were cultured on 48well plate, after wounding the cells, the cells were treat with exosomes to evaluate the wound recovery ability.
- Measuring and analyzing instrument: Incucyte ZOOM software (Sartorius)

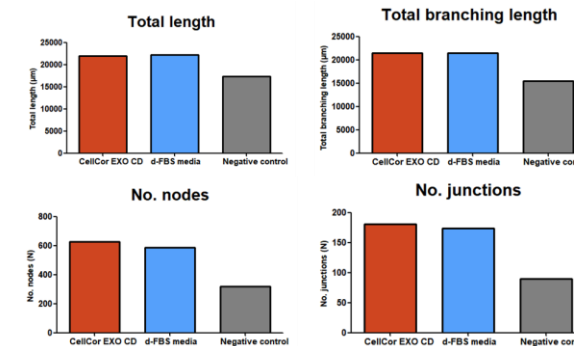
❖ As a result of comparing cell wound healing capabilities by treating MSC-derived exosome on CellCor EXO CD or each media, it was confirmed that exosomes secreted from CellCor EXO CD had excellent proliferation and regeneration effects of damaged cells.

Angiogenesis assay

Calcein AM staining



Angiogenesis index



- Experimental Method: HUVEC cell culture on 24well plate with 1×10^9 particles/ml of exosomes, and evaluate angiogenic index after 17h.
- Measuring and analyzing instrument: Incucyte ZOOM software (Sartorius), ImageJ

❖ The exosome produced using CellCor EXO CD showed a high angiogenic index.

Comparison of culture test with Commercial medium

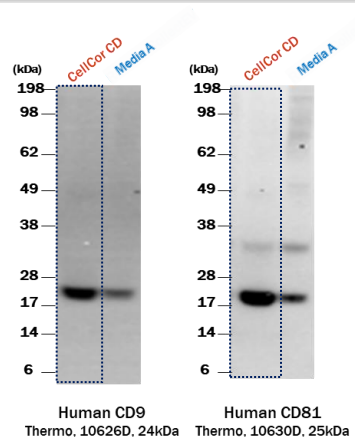
Distributed by:
CliniSciences Group

Exosome Specific Marker

Before culture Media (Media only)



Exosome detection

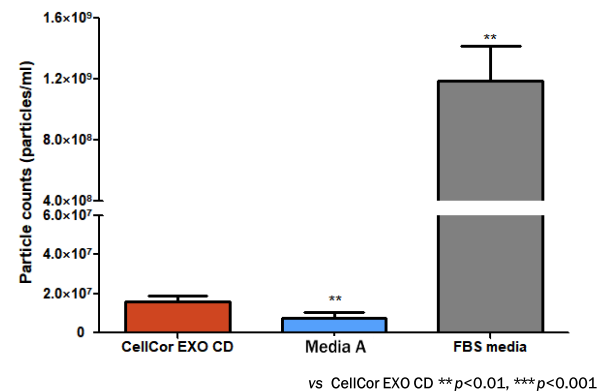


- Experimental Method: MSC were incubated in each media for 3 days, and then exosome was isolated and performed Western blot.
- Measuring and analyzing instrument: Tangential Flow Filtration (TFF, PALL) / iBright™ CL1000 Imaging System (Invitrogen)

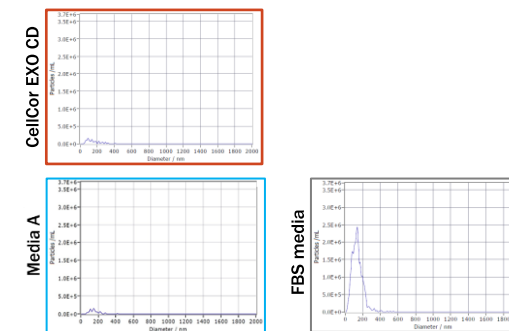
❖ CellCor EXO CD did not contain bovine-derived exosomes, and showed the highest exosome production

Purity

Exosome particle count (particles/ml)



ZetaView raw data



- Experimental Method: Measure the number of particles in before culture medium using ZetaView.
- Measuring and analyzing instrument: Zetaview (Particle matrix)

❖ CellCor EXO CD was confirmed to have the highest purity as it contained the lowest number of particles.

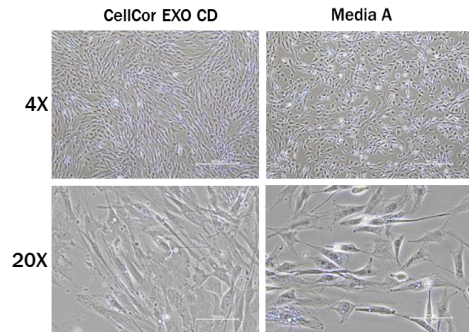
Comparison of culture test with Commercial medium

Distributed by:

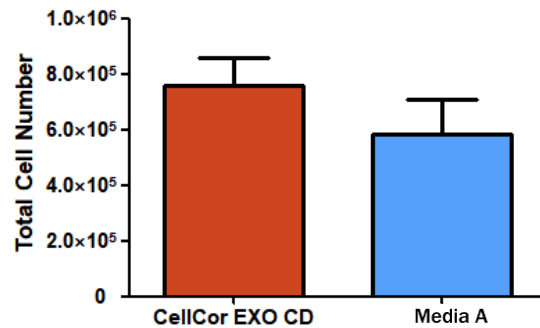
CliniSciences Group

Cell Proliferation

Cell morphology



Total cell number



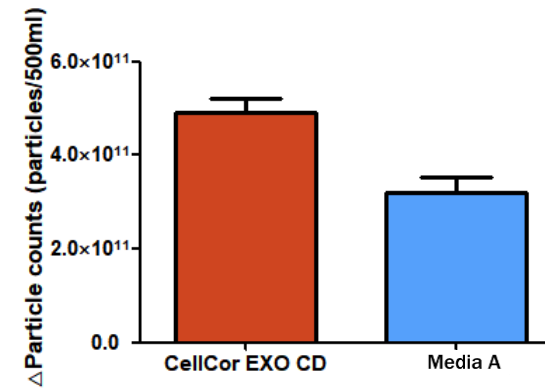
Donor N=3, hADSC, passage 6

- Experimental Method: MSC were seeded 1x10⁵ cells on T25 flask, and cultured during 5 days. The number of MSCs were counted.
- Measuring and analyzing instrument: NucleoCounter® NC-250 (ChemoMetec)

- ❖ More cells were proliferated with CellCor EXO CD in the same culture environment.
- ❖ Proliferation was about 1.3 times better than Commercial A media.

Exosome Production

Exosome particle count (particles/500ml)



Donor N=3, hADSC, passage 6

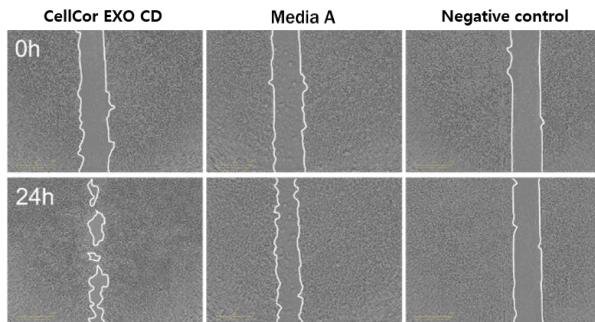
- Experimental Method: MSC were seeded 1x10⁵ cells on T25 flask, and cultured during 5 days. The number of MSC-derived exosomes was counted.
- Measuring and analyzing instrument: NucleoCounter® NC-250 (ChemoMetec), Zetaview (Particle metrix)

- ❖ It was verified that the production volume is about 1.6 times (or more) and is a very efficient medium for mass production.

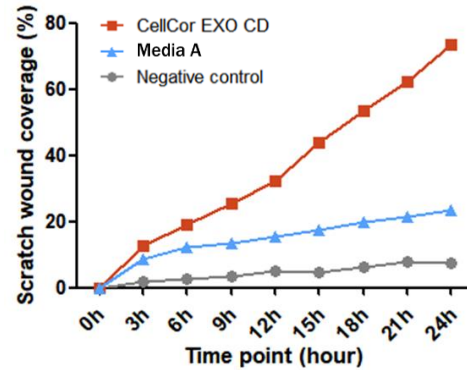
Comparison of culture test with Commercial medium **Distributed by:**
CliniSciences Group

Wound healing assay

Cell morphology



Wound Coverage

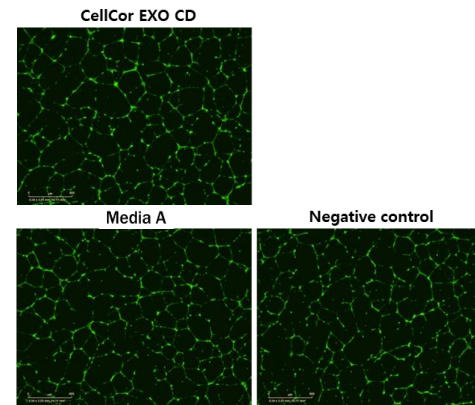


- Experimental Method: HaCaT cell were cultured on 48well plate, after wounding the cells, the cells were treat with exosomes to evaluate the wound recovery ability.
- Measuring and analyzing instrument: Incucyte ZOOM software (Sartorius)

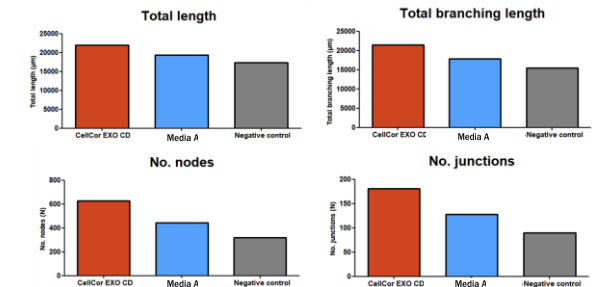
❖ As a result of comparing cell wound healing capabilities by treating MSC-derived exosome on CellCor EXO CD or each media, it was confirmed that exosomes secreted from CellCor EXO CD had excellent proliferation and regeneration effects of damaged cells.

Angiogenesis assay

Calcein AM staining



Angiogenesis index



- Experimental Method: HUVEC cell culture on 24well plate with 1×10^9 particles/ml of exosomes, and evaluate angiogenic index after 17h.
- Measuring and analyzing instrument: Incucyte ZOOM software (Sartorius), ImageJ

❖ The exosome produced using CellCor EXO CD showed a high angiogenic index.

Comparison of culture test with various tissue origin

Distributed by:
CliniSciences Group

Bone Marrow-derived MSCs

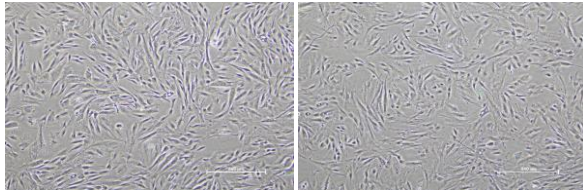
Umbilical Cord-derived MSCs

Proliferation

Specific marker

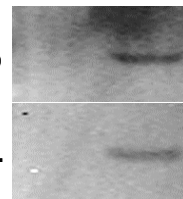
Passage 5

Passage 6



Before culture media
BMSC derived exosome

CD9

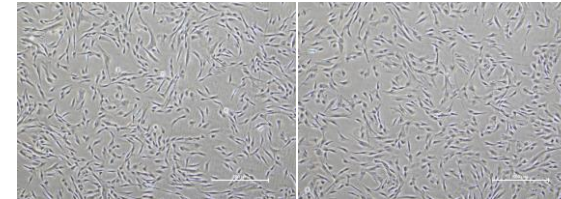


CD81



Passage 5

Passage 6



Before culture media
UCSC cultured media

CD9



CD81

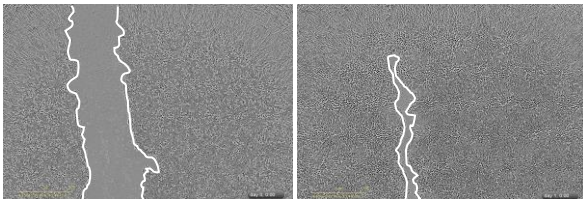


Wound healing assay

Angiogenesis assay

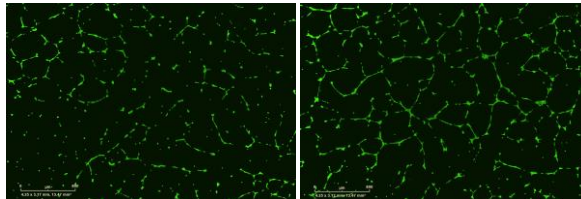
Negative control

BMSC-derived exosome
(1 x 10⁹ particles/ml)



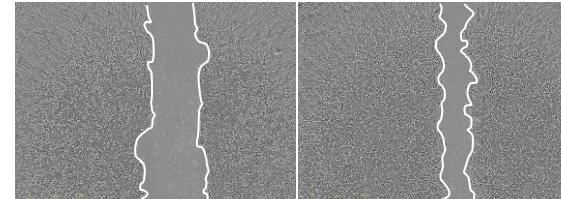
Negative control

BMSC-derived exosome
(1 x 10⁹ particles/ml)



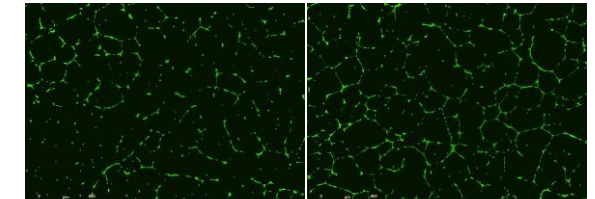
Negative control

UCSC-derived exosome
(1 x 10⁹ particles/ml)



Negative control

UCSC-derived exosome
(1 x 10⁹ particles/ml)



- Experimental Method: MSC were seeded 1x10⁵ cells on T25 flask, and subcultured every 3 days. Exosome was isolated and performed Western blot.
- Measuring and analyzing instrument: NucleoCounter[®] NC-250 (ChemoMetec) / iBright[™] CL1000 Imaging System (Invitrogen) / Incucyte ZOOM (Sartorius), ImageJ

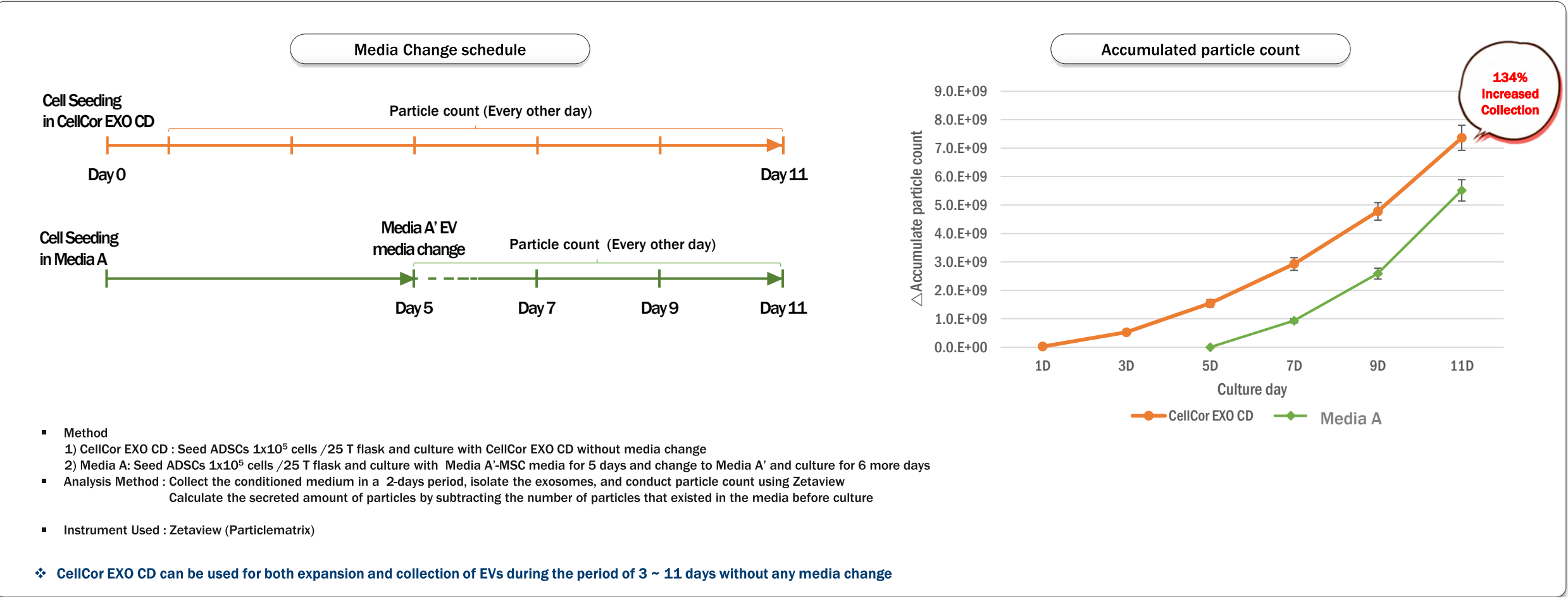
❖ CellCor EXO CD could be cultured in various tissue-derived sources.

Distributed by:

CliniSciences Group

Analytical Comparison Compared to Competing Media

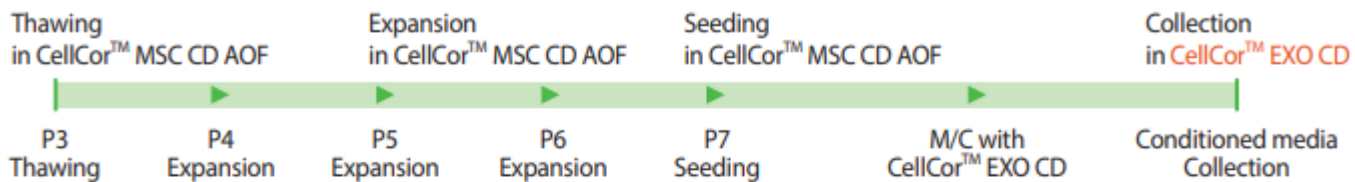
Exosome particle count



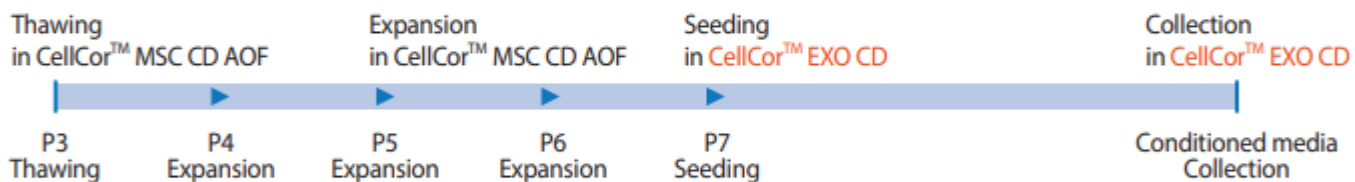
Enabling Flexible Research Design

Distributed by:
CliniSciences Group

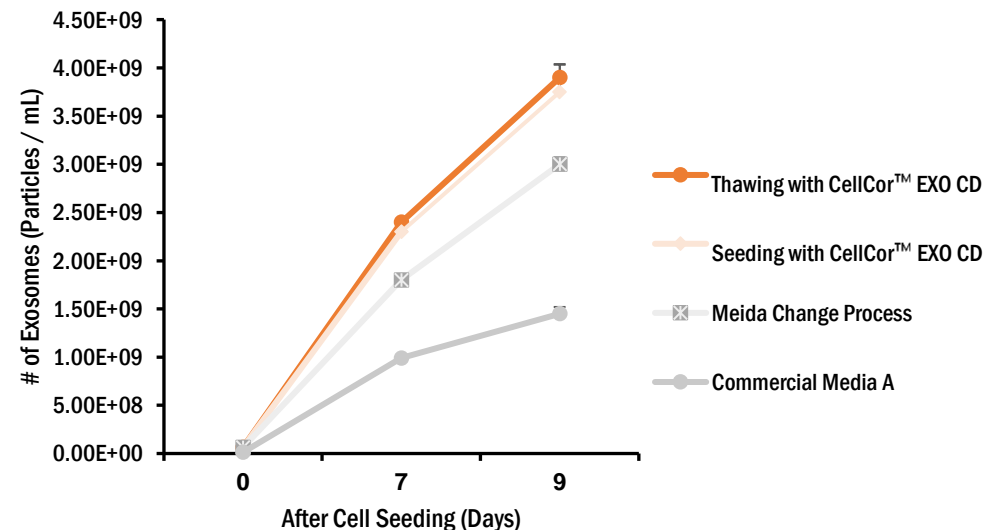
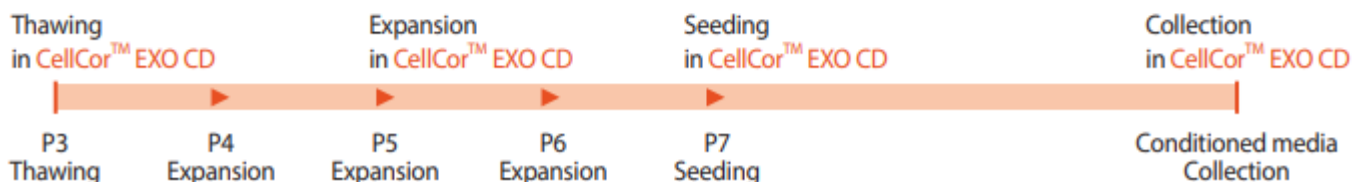
Media Change Process



Seeding with CellCor™ EXO CD Process



Thawing with CellCor™ EXO CD Process



CliniSciences Group

Austria

Company: CliniSciences GmbH
Address: Sternwartestrasse 76, A-1180
Wien - Austria
Telephone: +43 720 115 580
Fax: +43 720 115 577
Email: oessterreich@clinisciences.com
Web: <https://www.clinisciences.com>



Belgium

Company: CliniSciences S.R.L
Address: Avenue Stalingrad 52, 1000
Brussels - Belgium
Telephone: +32 2 31 50 800
Fax: +32 2 31 50 801
Email: belgium@clinisciences.com
Web: <https://www.clinisciences.com>



Denmark

Company: CliniSciences ApS
Address: Oesterbrogade 226, st. 1,
Copenhagen, 2100 - Denmark
Telephone: +45 89 888 349
Fax: +45 89 884 064
Email: denmark@clinisciences.com
Web: <https://www.clinisciences.com>



Finland

Company: CliniSciences ApS
Address: Oesterbrogade 226, st. 1,
Copenhagen, 2100 - Denmark
Telephone: +45 89 888 349
Fax: +45 89 884 064
Email: suomi@clinisciences.com
Web: <https://www.clinisciences.com>



France

Company: CliniSciences S.A.S
Address: 74 Rue des Suisses, 92000
Nanterre- France
Telephone: +33 9 77 40 09 09
Fax: +33 9 77 40 10 11
Email: info@clinisciences.com
Web: <https://www.clinisciences.com>



Germany

Company: Biotrend Chemikalien GmbH
Address: Wilhelm-Mauser-Str. 41-43,
50827 Köln - Germany
Telephone: +49 221 9498 320
Fax: +49 221 9498 325
Email: info@biotrend.com
Web: <https://www.biotrend.com>



Iceland

Company: CliniSciences ApS
Address: Oesterbrogade 226, st. 1,
Copenhagen, 2100 - Denmark
Telephone: +45 89 888 349
Fax: +45 89 884 064
Email: island@clinisciences.com
Web: <https://www.clinisciences.com>



Ireland

Company: CliniSciences Limited
Address: Ground Floor, 71 lower Baggot street
Dublin D02 P593 - Ireland
Telephone: +353 1 6971 146
Fax: +353 1 6971 147
Email: ireland@clinisciences.com
Web: <https://www.clinisciences.com>



Italy

Company: CliniSciences S.r.l
Address: Via Maremmana inferiore 378
Roma 00012 Guidonia Montecelio - Italy
Telephone: +39 06 94 80 56 71
Fax: +39 06 94 80 00 21
Email: italia@clinisciences.com
Web: <https://www.clinisciences.com>



Netherlands

Company: CliniSciences B.V.
Address: Gaetano Martinolaan 85, 6229
GS Maastricht - Netherlands
Telephone: +31 85 2082 351
Fax: +31 85 2082 353
Email: nederland@clinisciences.com
Web: <https://www.clinisciences.com>



Norway

Company: CliniSciences AS
Address: Kraijenhoffstraat 137A,
1018RG Amsterdam, Netherlands
Telephone: +47 21 988 882
Email: norge@clinisciences.com
Web: <https://www.clinisciences.com>



Poland

Company: CliniSciences sp.z.o.o.
Address: ul. Rotmistrza Witolda Pileckiego 67
lok. 200 - 02-781 Warszawa -Poland
Telephone: +48 22 307 0535
Fax: +48 22 307 0532
Email: polska@clinisciences.com
Web: <https://www.clinisciences.com>



Portugal

Company: Quimigen Unipessoal LDA
Address: Rua Almada Negreiros, Lote 5, Loja 14,
2615-275 Alverca Do Ribatejo - Portugal
Telephone: +351 30 8808 050
Fax: +351 30 8808 052
Email: info@quimigen.pt
Web: <https://www.quimigen.pt>



Spain

Company: CliniSciences Lab Solutions
Address: C/ Hermanos del Moral 13
(Bajo E), 28019, Madrid - Spain
Telephone: +34 91 269 40 65
Fax: +34 91 269 40 74
Email: espana@clinisciences.com
Web: <https://www.clinisciences.com>



Sweden

Company: CliniSciences ApS
Address: Oesterbrogade 226, st. 1,
Copenhagen, 2100 - Denmark
Telephone: +45 89 888 349
Fax: +45 89 884 064
Email: sverige@clinisciences.com
Web: <https://www.clinisciences.com>



Switzerland

Company: CliniSciences AG
Address: Address: Fracht Ost Flughafen
Kloten CH-8058 Zürich - Switzerland
Telephone: +41 (044) 805 76 81
Fax: +41 (044) 805 76 75
Email: switzerland@clinisciences.com
Web: <https://www.clinisciences.com>



UK

Company: CliniSciences Limited
Address: 11 Progress Business center, Whittle
Parkway, SL1 6DQ Slough- United Kingdom
Telephone: +44 (0)1753 866 511
or +44 (0) 330 684 0982
Fax: +44 (0)1753 208 899
Email: uk@clinisciences.com
Web: <https://www.clinisciences.com>



USA

Company: Biotrend Chemicals LLC
Address: c/o Carr Riggs Ingram,
500 Grand Boulevard, Suite 210 Miramar
Beach, FL 32550- USA
Telephone: +1 850 650 7790
Fax: +1 850 650 4383
Email: info@biotrend-usa.com
Web: <https://www.biotrend-usa.com>

