

welcome to **Stem Cell Core**



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Members

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Pei-Shan Hou

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Ming-Shan Chiang
Yi-Fang Tsai
Chieh-Wei Lin

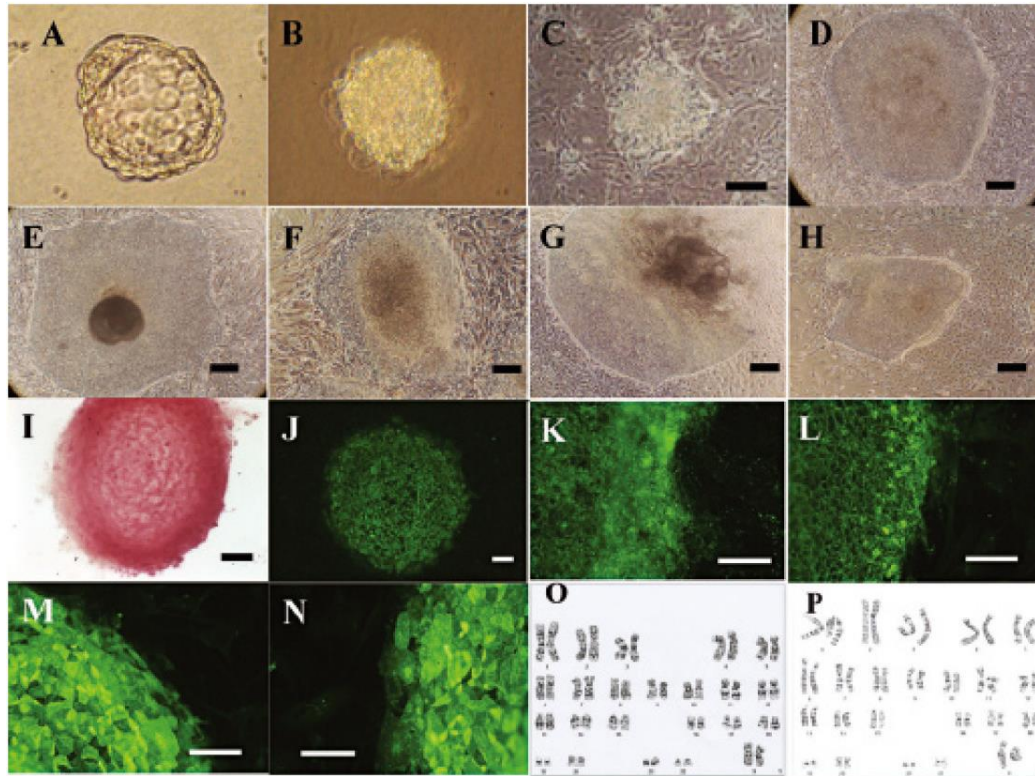
Administrative Asistant

Wei-Ting Huang (#88637)



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Aim



We supply our high quality human embryonic stem cells (hESC) for researchers.



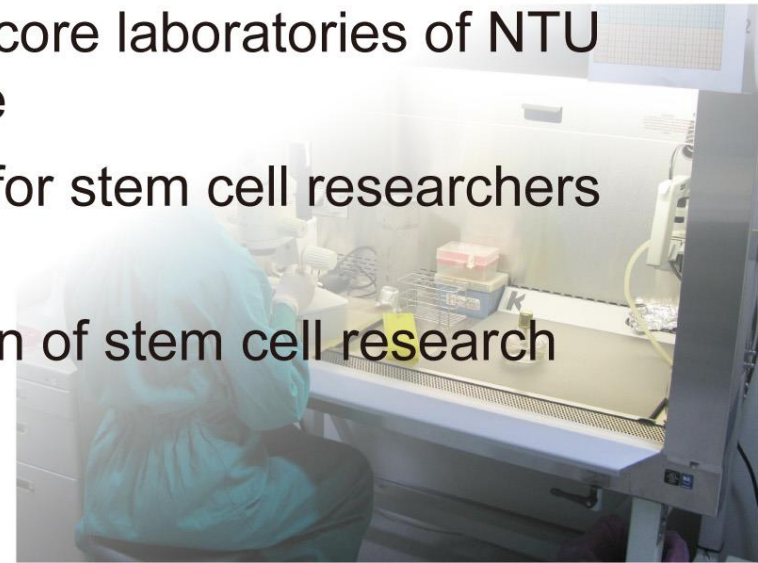
◀ Chen et al. 2007



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Goals

- To supply hESC for projects within this project
- To provide the techniques and routines for characterization of hESC
- To integrate the service provided by the core laboratories of NTU Research Center for Medical Excellence
- To supply hESC and technical supports for stem cell researchers nationwide
- To promote the international collaboration of stem cell research



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Service

- hESCs (offer human embryonic stem cells)
- Feeder layer, MEF (offer mouse embryonic fibroblast)
- Immunocytochemistry
- RT-PCR
- Cell sorting (in process)

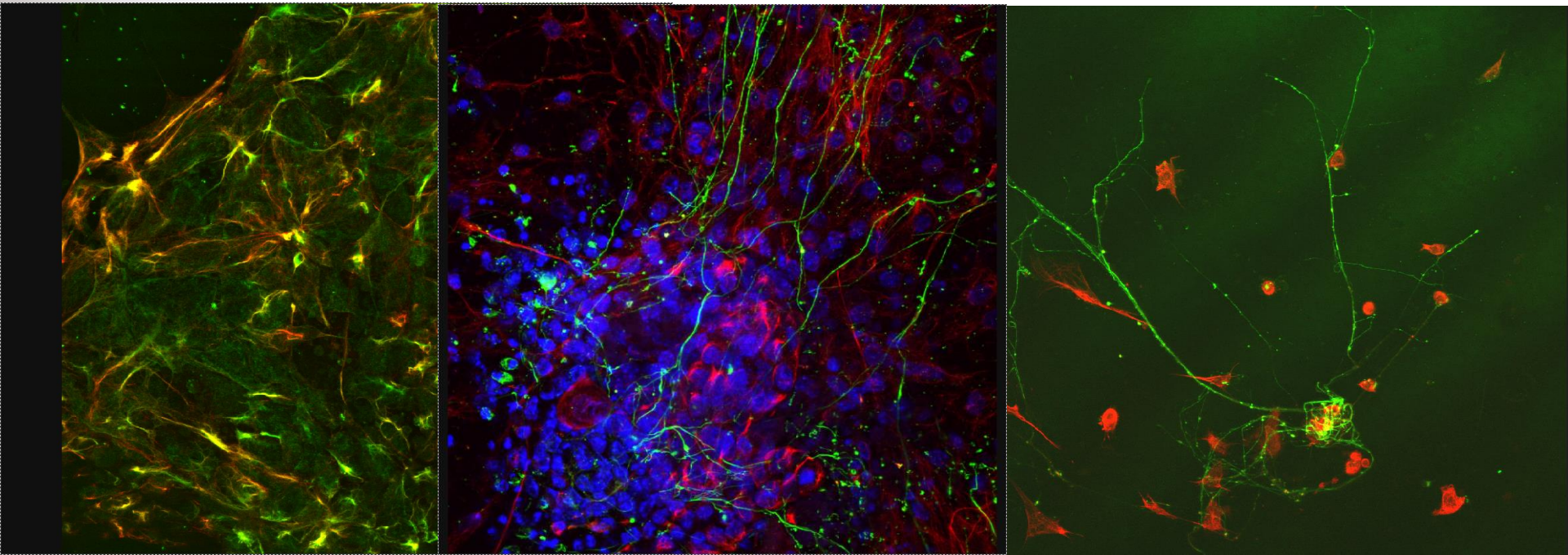


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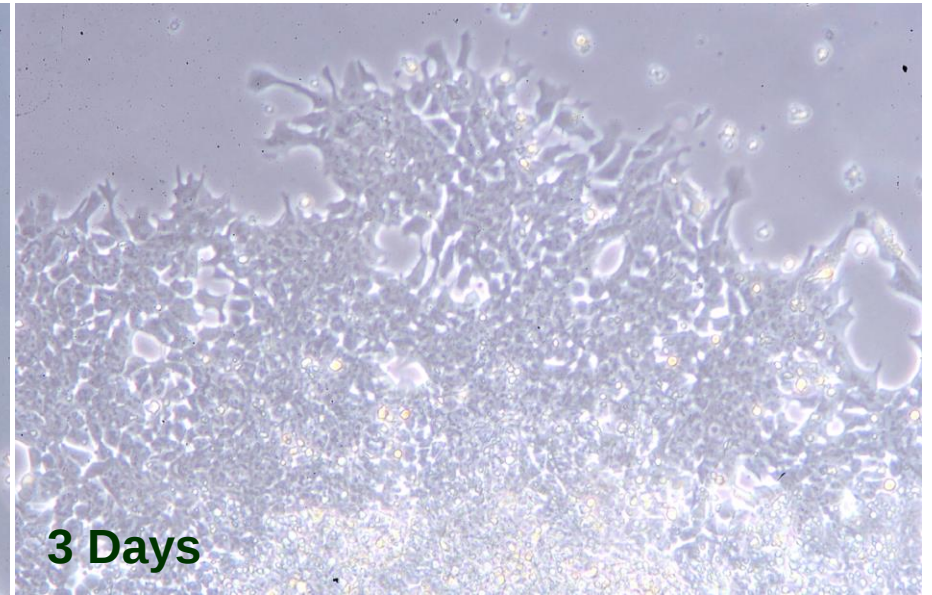
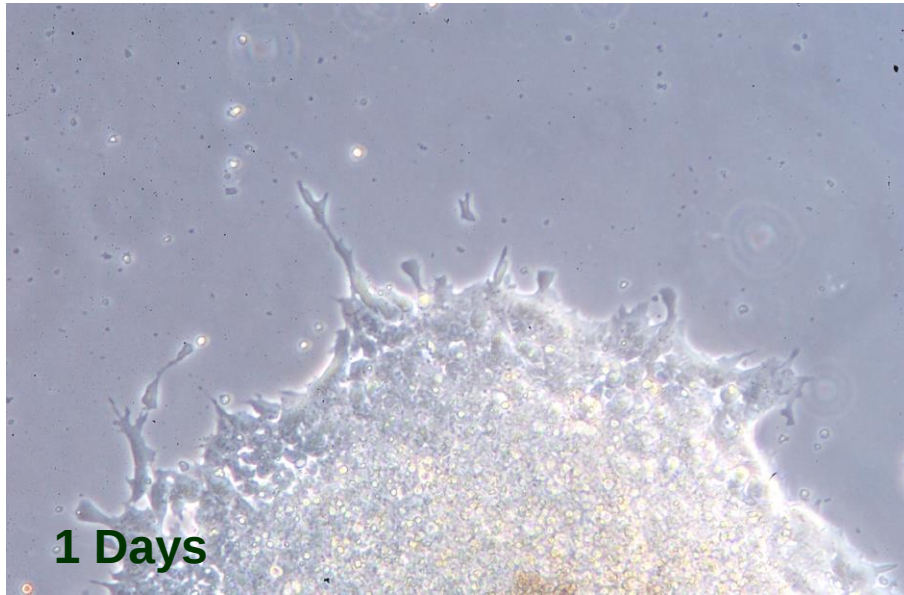
Embryonic Stem Cells



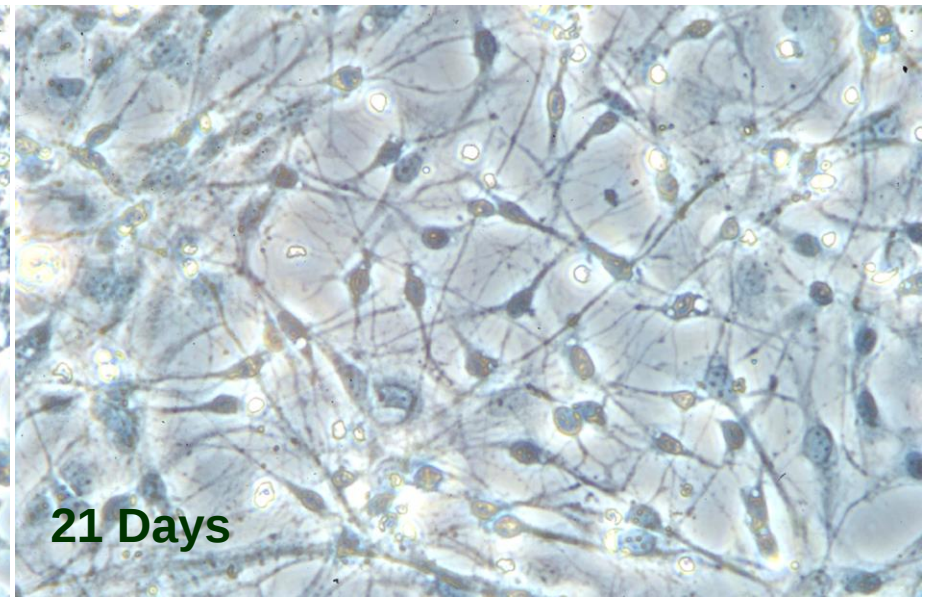
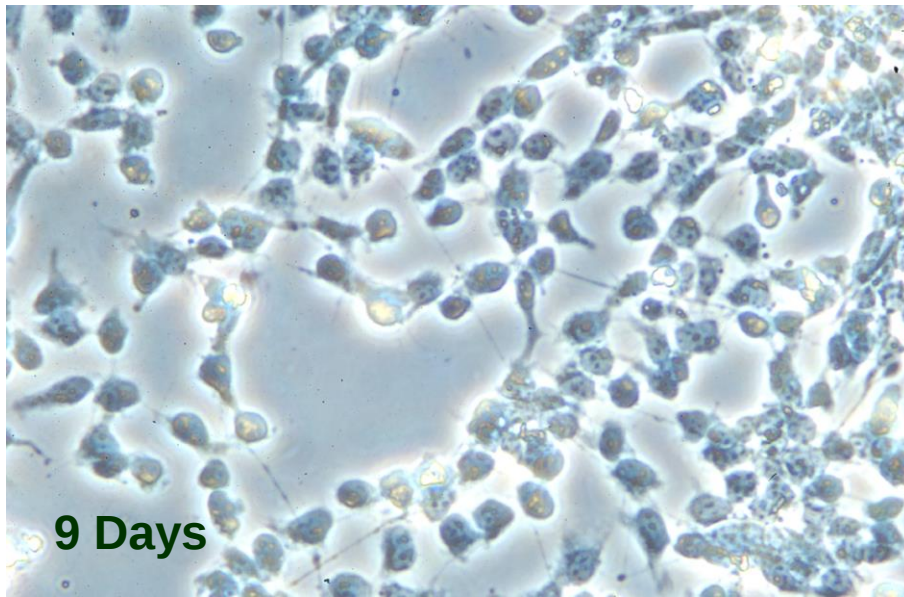
Figure 1.2 Stem cells derived from the blastocyst of an activated monkey egg can differentiate into functioning neurons. (Modified from Cibelli, J. B., et al. [2002]. Parthenogenetic stem cells in nonhuman primates. *Science* 295: 819.)



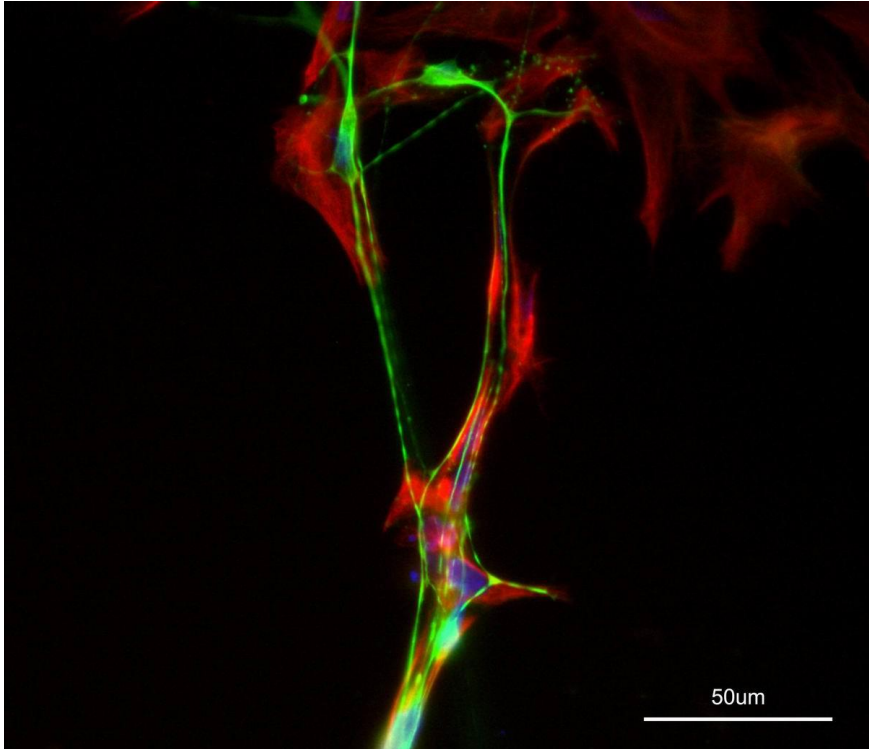
Embryoid body in DMEM/F12 media supplemented with ITSF



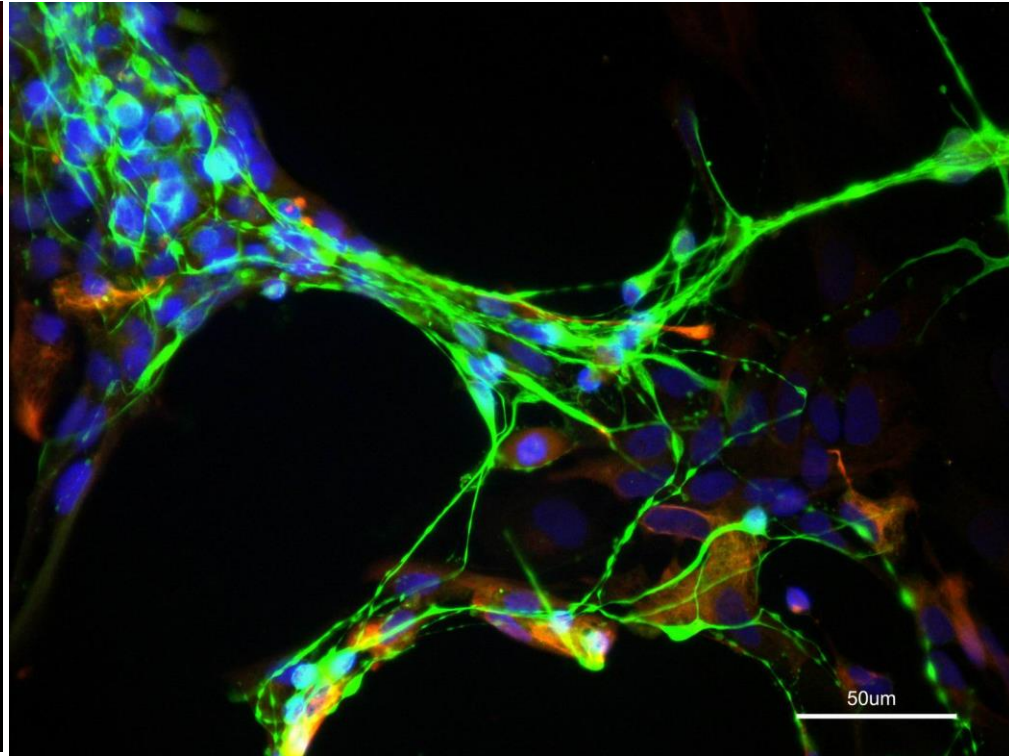
Differentiating cells after neural induction with N2 supplement



NTU1 Human ES cell



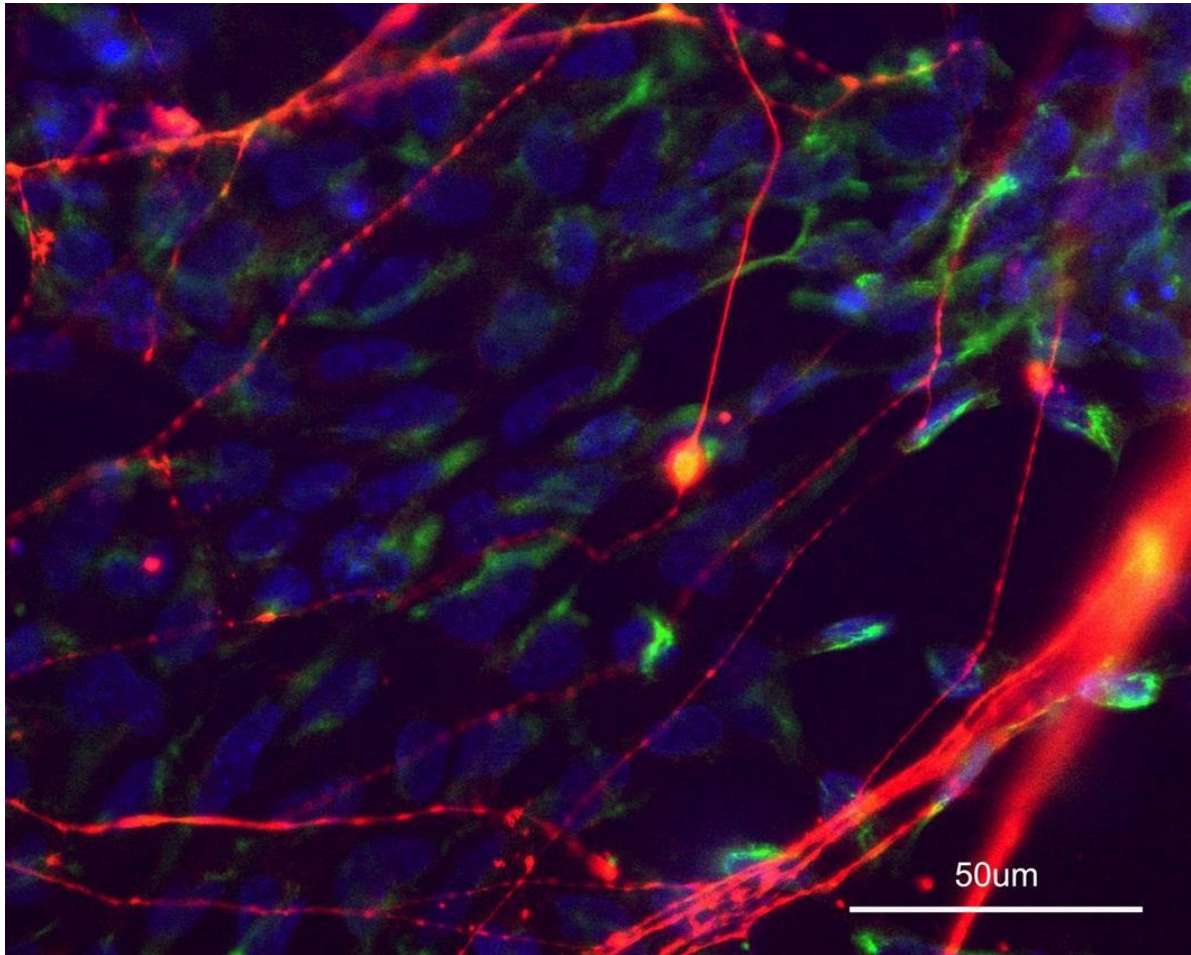
Neuron (TuJ) in Green
Glia (GFAP) in Red
Nuclei (H33342) in Blue



Neuron (TuJ) in Green
Glia (GFAP) in Red
Nuclei (H33342) in Blue

Induced Pluripotent Stem (iPS) Cells

(from Kyoto University)



Neuron (TuJ)

Neural stem cells
(Nestin)

Nuclei (H33342)

2008 International Research Training Program for IFMSA: Neural Induction of Embryonic Stem Cells

**Ms. Duangtip Tiacharoen from Thailand
(March –April)**

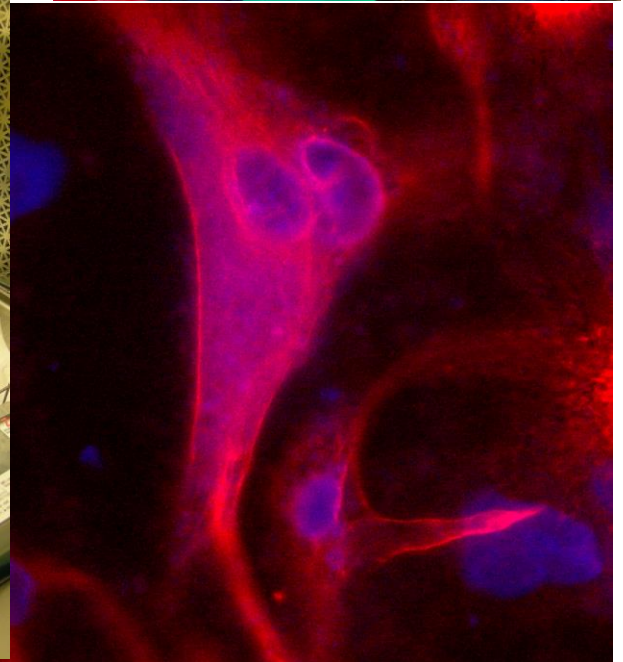


Ms. Laura Gamez Santin from Spain (July)

Ms. Gladys Barrera Castillo from Spain (July)

Ms. Dominika Wrobel from Poland (July)

The collage consists of nine images arranged in a grid-like fashion. The top row features three images: a brightfield micrograph of cells with prominent red nuclei, a fluorescence micrograph of cells with green nuclei, and a photograph of a person's hands using a pipette to add liquid to a multi-well plate. The middle row contains three images: a photograph of a person's hands using a pipette to add liquid to a multi-well plate, a photograph of a person's hands using a pipette to add liquid to a multi-well plate, and a photograph of a person's hands using a pipette to add liquid to a multi-well plate. The bottom row contains three images: a photograph of a person's hands using a pipette to add liquid to a multi-well plate, a photograph of a person's hands using a pipette to add liquid to a multi-well plate, and a photograph of a person's hands using a pipette to add liquid to a multi-well plate.

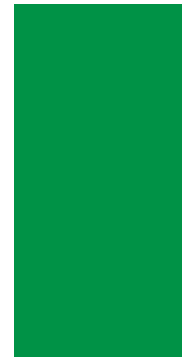


2009 International Research Training Program for IFMSA: Neural Induction of Embryonic Stem Cells

Mr. Balasch Carulla Borja from Spain (July)

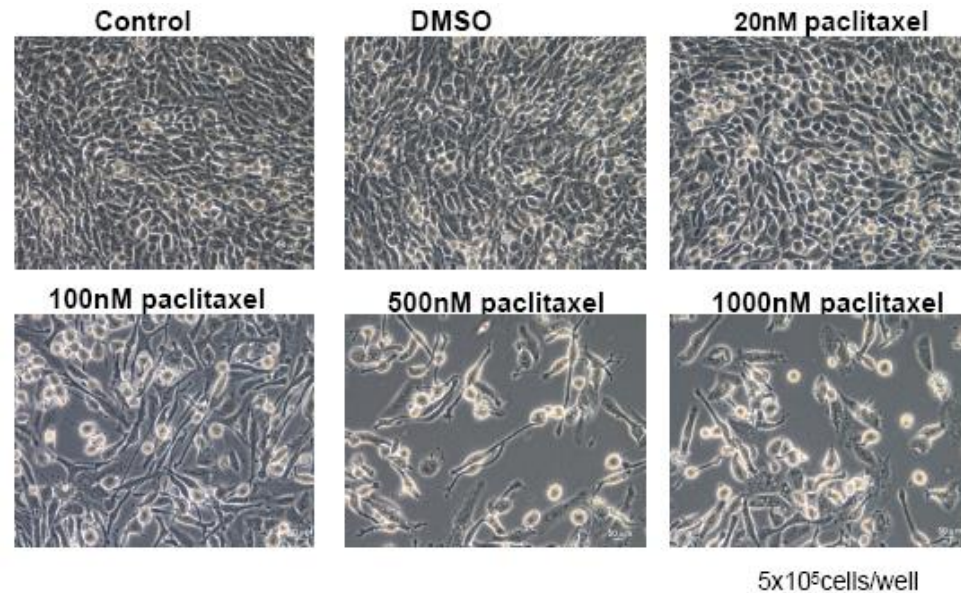
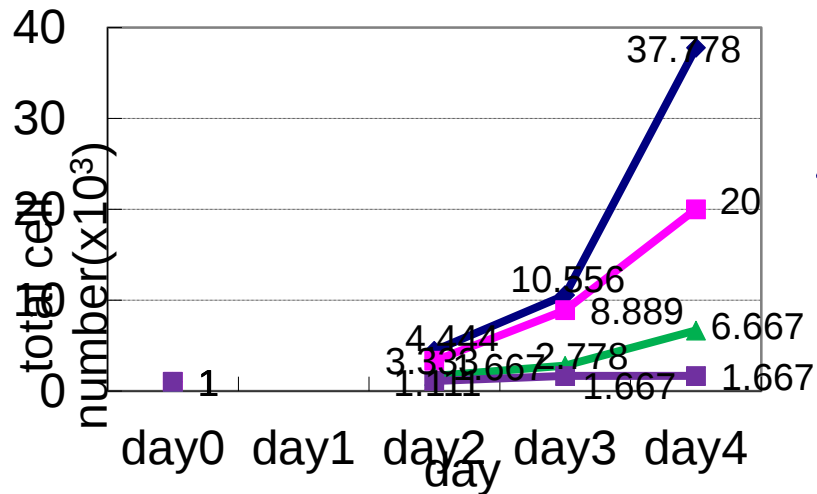
Ms. Marina Coelho Morais from Portugal (July)

Mr. Sebastiano Raimondo from Italy (August)



The effects of paclitaxel on rat glioma cell line C6

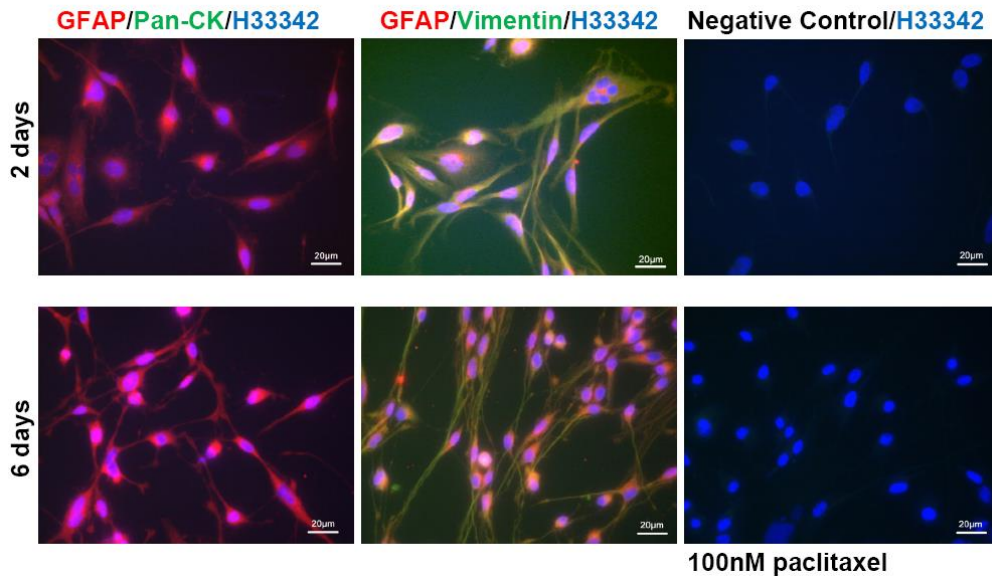
報告人：醫學三 羅大烜（研究傑出獎）



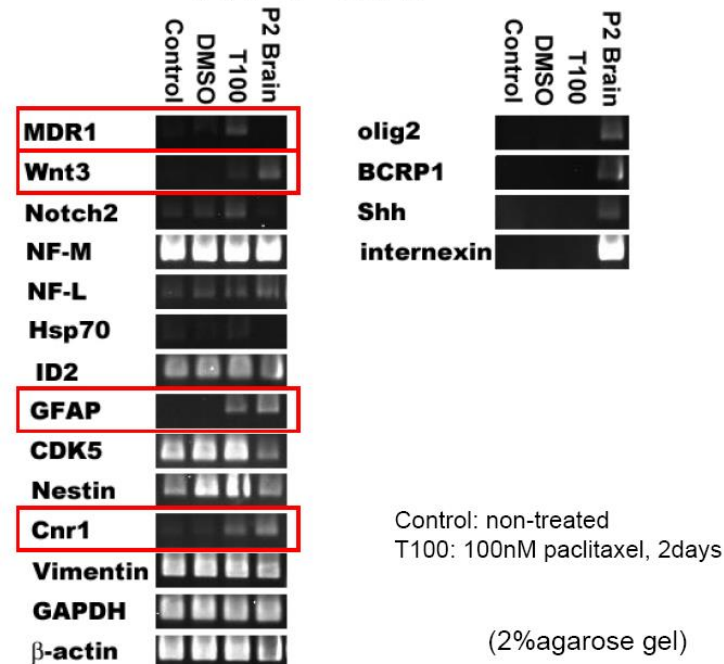
5x10⁵ cells/well

Summary

	control	DMSO	100nM Taxol
negative	-	-	-
Vimentin	++	++	+++
GFAP (astrocyte)	+	+	+++
NFL (neuron)	-	-	-
Nestin	+	+	+
Pam-CK	-	-	-
CNP (oligodendrocyte)	-	-	-



RT-PCR

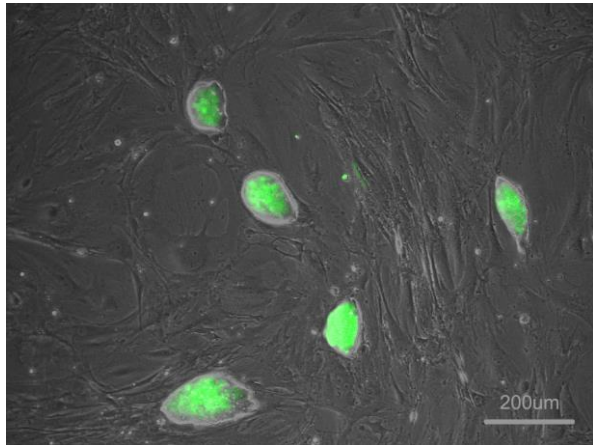


Summary and Prospective

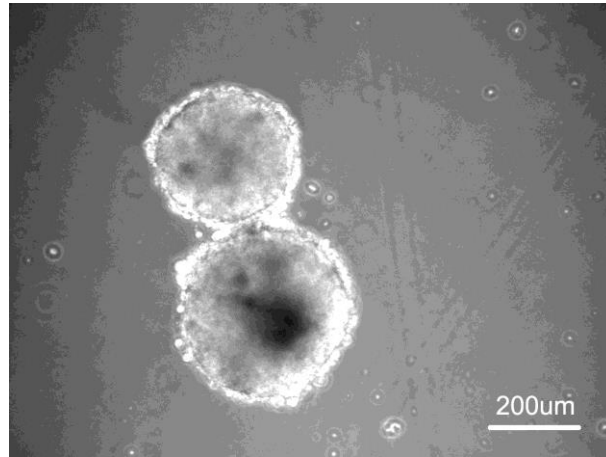
- Paclitaxel may induce differentiation of C6 glioma cells to astrocytes
- Prospective:
 - The relationship between Cnr1 and induction of C6 to astrocyte (EJN, 2007 Sep;26(6):1548-59)
 - The relationship between Wnt3 and induction of C6 to astrocyte (Nature, 2005 Oct; 437(27):1370-75)

DMSO-induced cardiomyocyte differentiation from mouse embryonic stem cells

醫學系 黃俊傑 (佳作)



mESC clones with GFP



Mouse embryoid bodies



Muscle-like contraction

Welcome to join our Stem Cell Research



幹細胞與組織工程教學資源中心
Stem Cells and Tissue Engineering Resource Center

中文

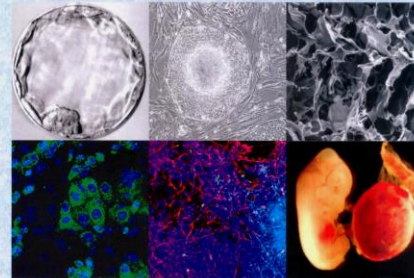
[English](#)

本網站所有圖文、資料屬教育部生物及醫學科技人才培育先導型計畫「幹細胞與組織工程教學資源中心」所有。

請勿任意轉載或擴散使用。網頁內容以1024 X 768，B13.5調整最佳。

教育部「生物及醫學科技人才培育先導型計畫」

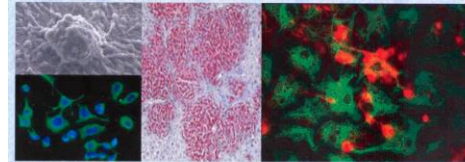
幹細胞學



幹細胞與組織工程教學資源中心 主編
教育部顧問室 補助
中華民國九十七年二月出版

教育部「生物及醫學科技人才培育先導型計畫」

再生醫學



幹細胞與組織工程教學資源中心 主編
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中華民國九十七年二月出版

網址：<http://stemcell.mc.ntu.edu.tw/>

<http://stemcell.mc.ntu.edu.tw/download/幹細胞學教材網路版.pdf>

<http://stemcell.mc.ntu.edu.tw/download/再生醫學教材網路版.pdf>

Teaching Resource Center for Genomic Medicine (TRCGM)

基因體醫學教學資源中心

張明富 Ming-Fu Chang

錢宗良 Chung-Liang Chien

Fluorescent dyes for organelle and cytoskeleton staining

Mitochondria:

MitoTracker Red

MitoTracker Green

Lysosome:

LysoTracker Red

Endoplasmic reticulum: ER-Tracker Blue-White

F-actin:

Phalloidin-Rodamine (Red)

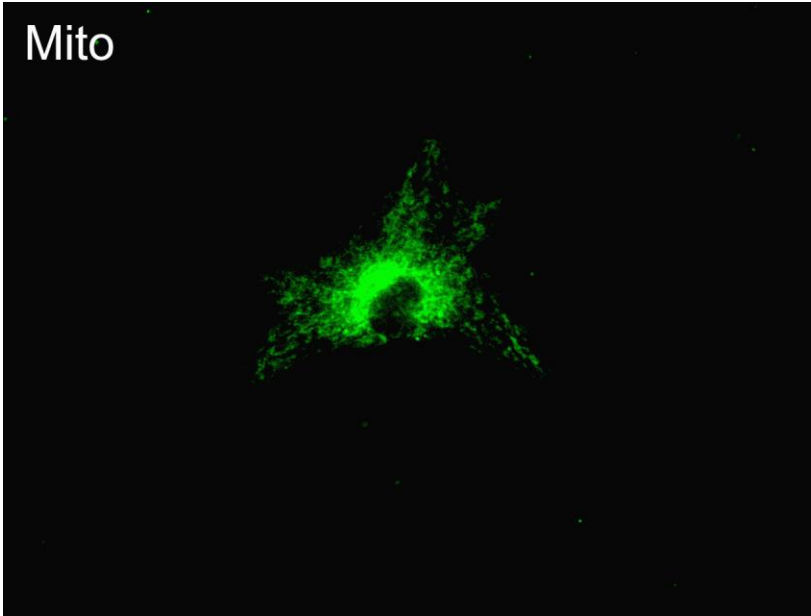
Organelle staining (Live cell):

Primary cultured mouse embryonic fibroblast

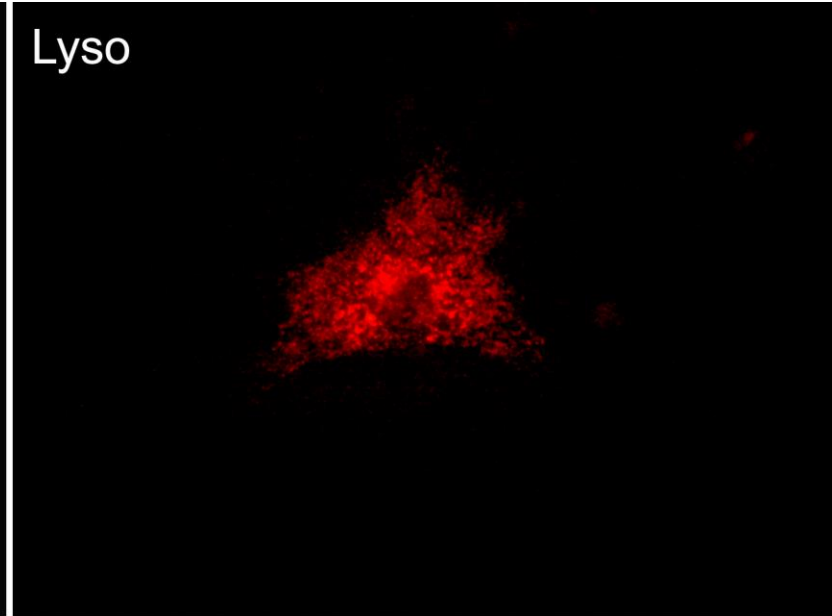
Mito: MitoTracker Green 1:2000

Lyso: LysoTracker Red 1:20000

Mito



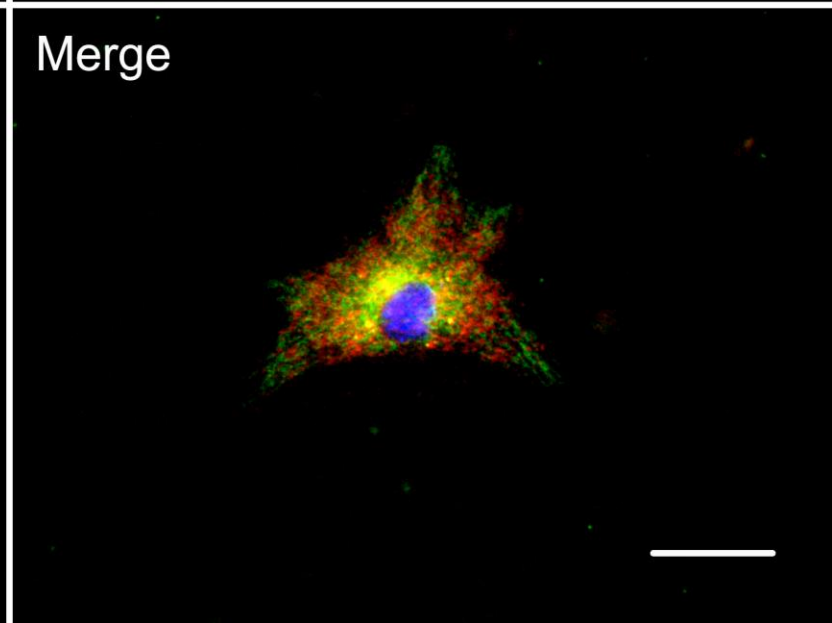
Lyso



H33342



Merge



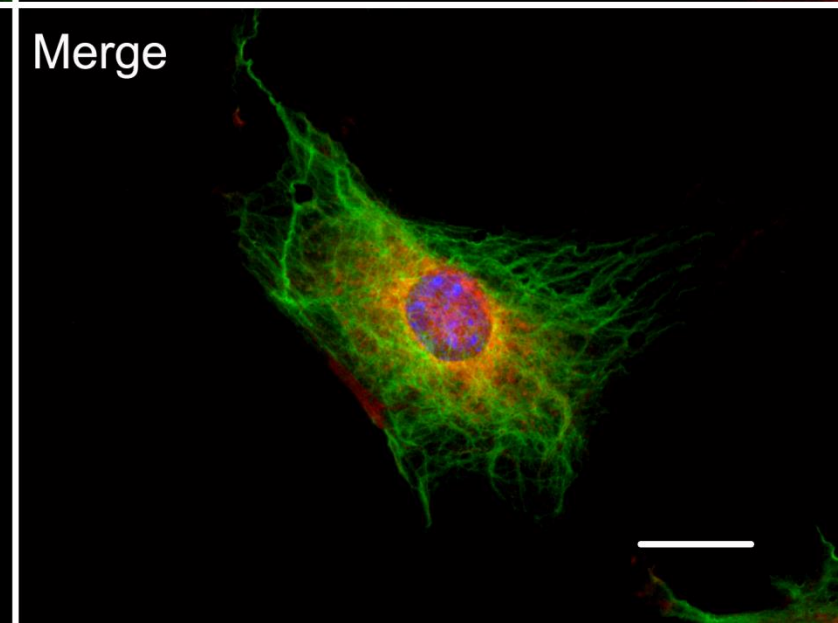
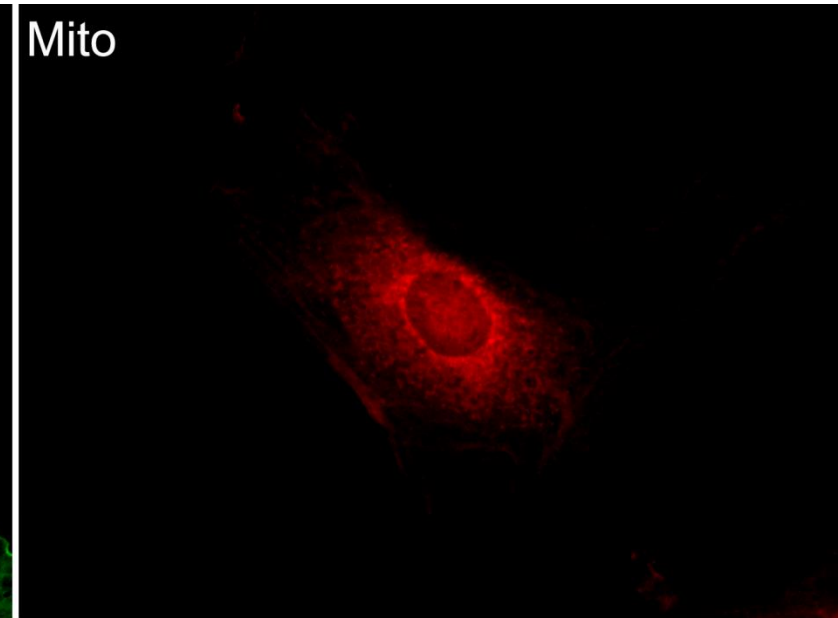
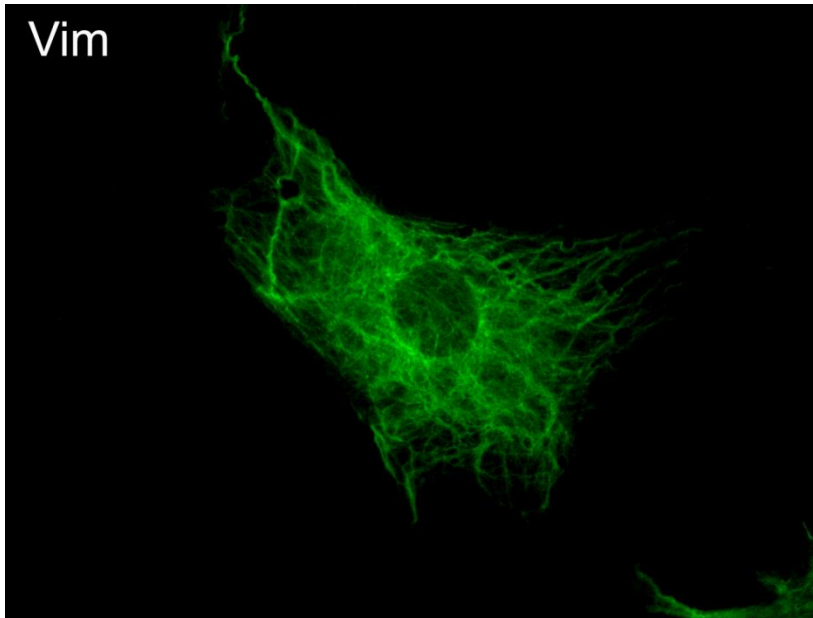
Scale bar=50μm

Organelle staining (Fixed cell):

Primary cultured mouse embryonic fibroblast

Vim: vimentin antibody 1:200

Mito: MitoTracker Red 1:2000

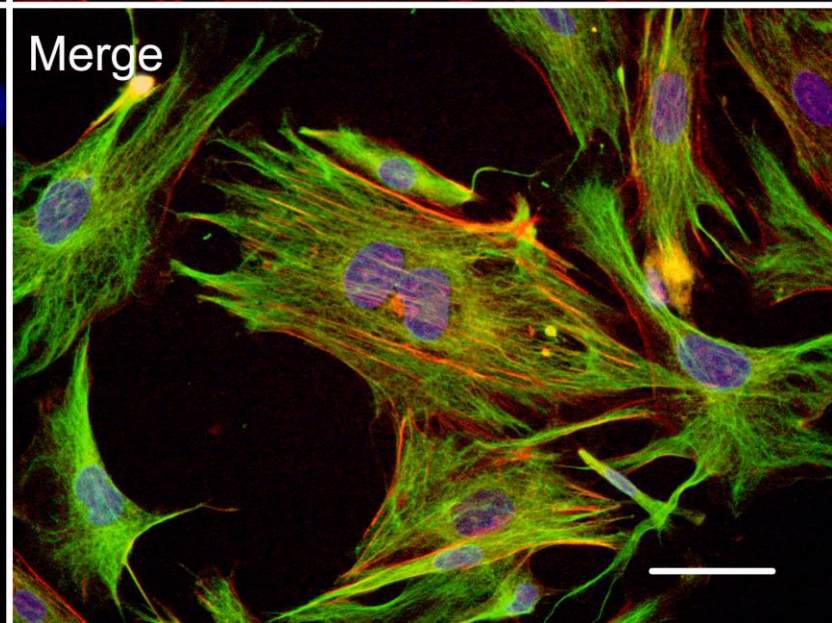
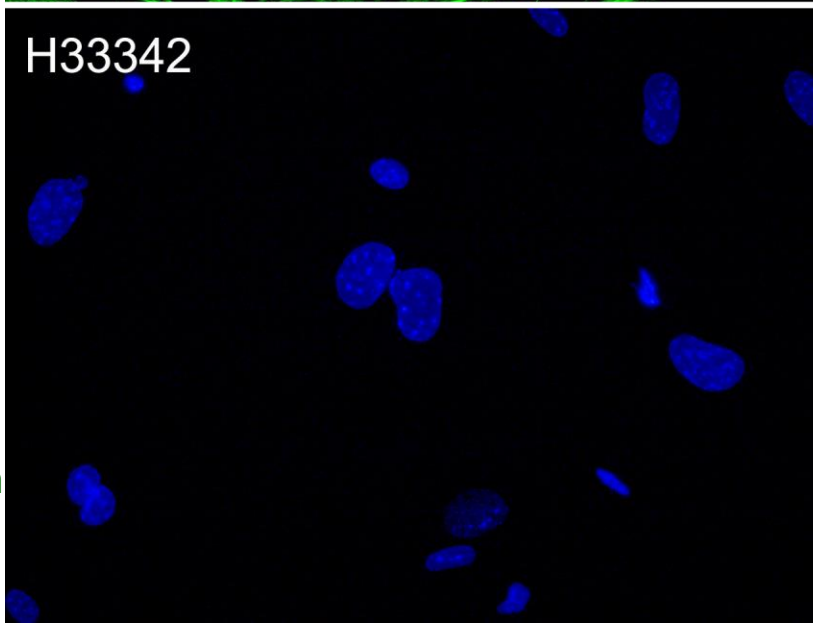
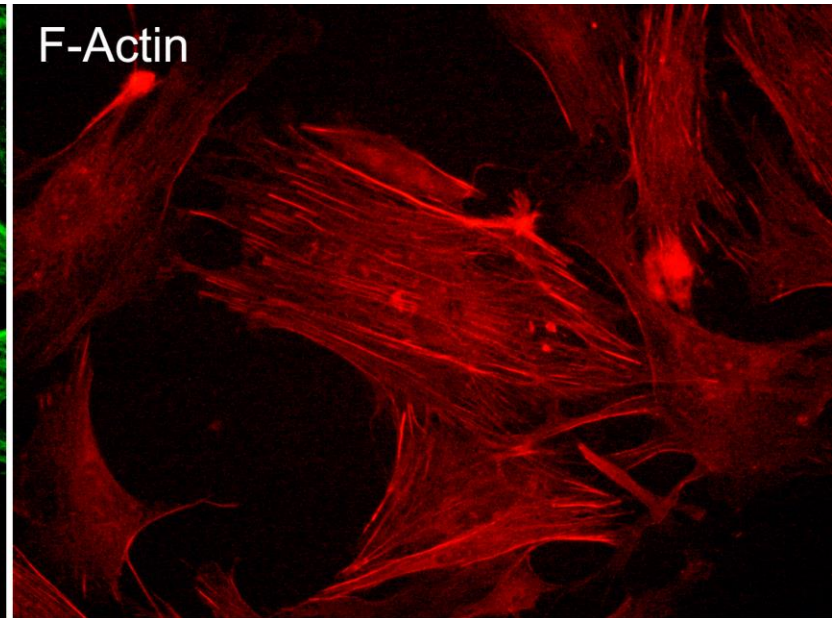
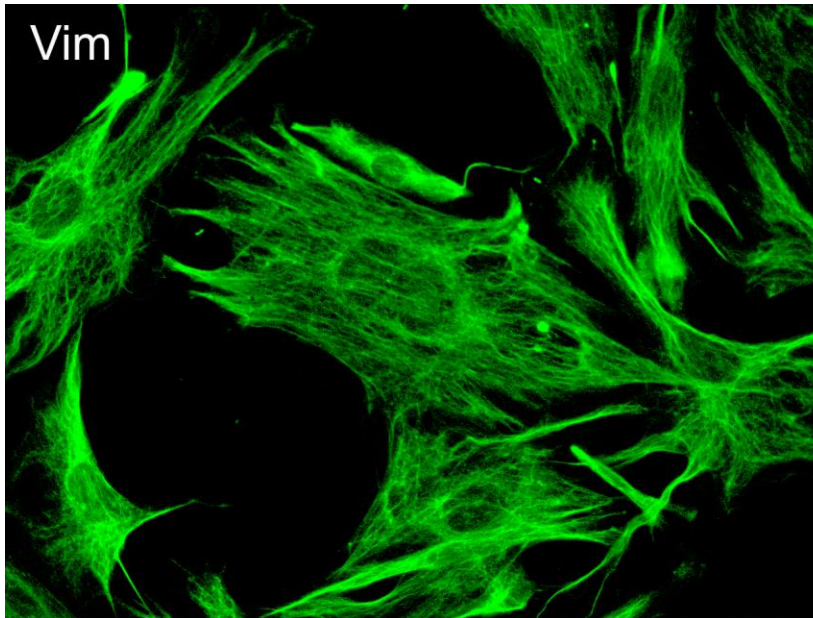


Organelle staining (Fixed cell):

Primary cultured mouse embryonic fibroblast

Vim: vimentin antibody 1:200

F-Actin: Phalloidin Rodamine: 1:40



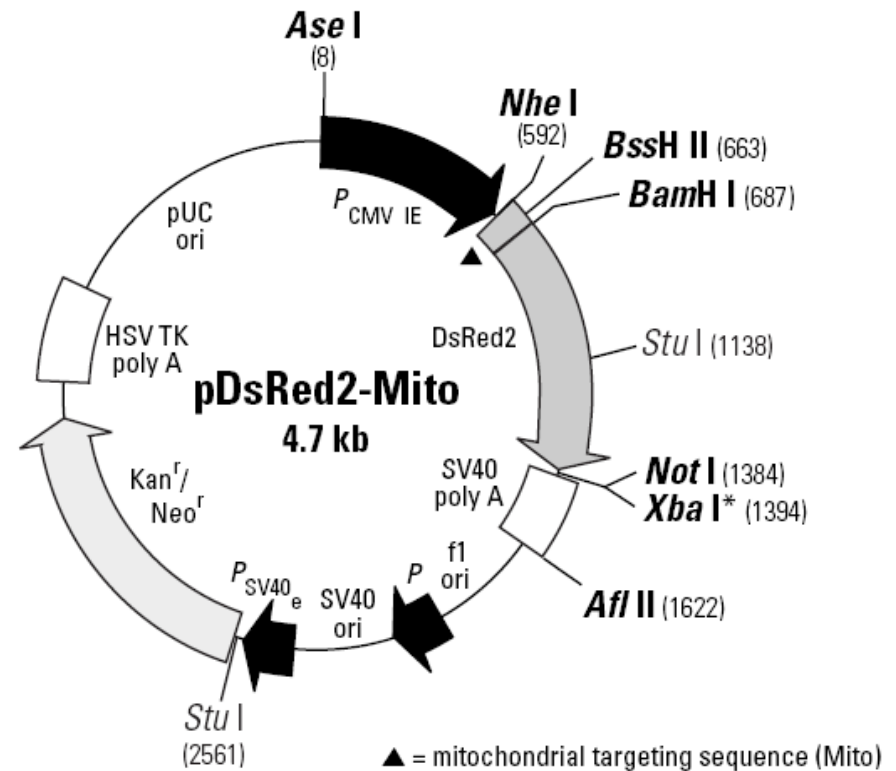
Scale bar=50μm

Virtual DNA and Plasmids Resource Center

載體名稱	來源	是否有使用者執照限制	提供DNA(μ g)或含載體之冷凍菌種
pDsRed-Monomer-Actin	BD Clontech	是	DNA
pDsRed-Monomer-Golgi	BD Clontech	是	DNA
pDsRed2-Mito	BD Clontech	是	DNA
pDsRed-Monomer-Mem	BD Clontech	是	DNA
pAcGFP1-Endo	BD Clontech	是	DNA
pZsProSensor-1	BD Clontech	是	DNA
pEYFP-Actin	BD Clontech	是	DNA
pEYFP-Tubulin	BD Clontech	是	DNA

Subcellular localization vector: pDsRed2-Mito

(DsRed2) and a mitochondrial targeting sequence from subunit VIII of human cytochrome c oxidase.

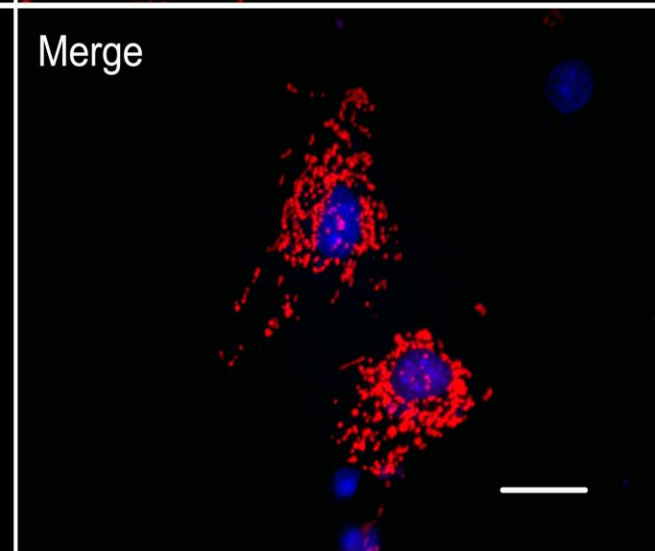
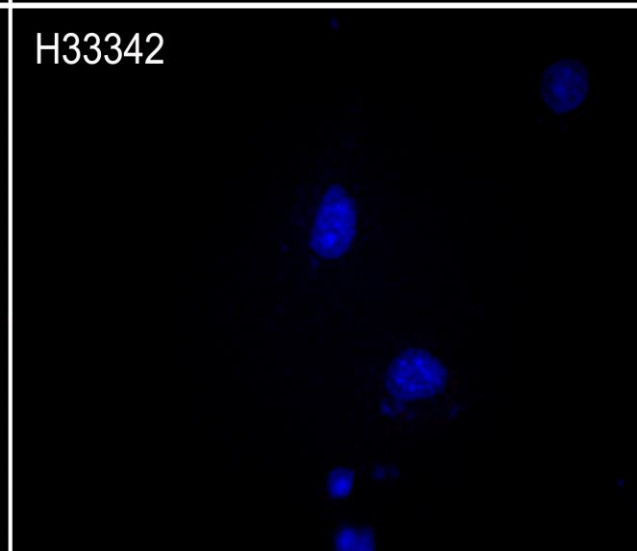
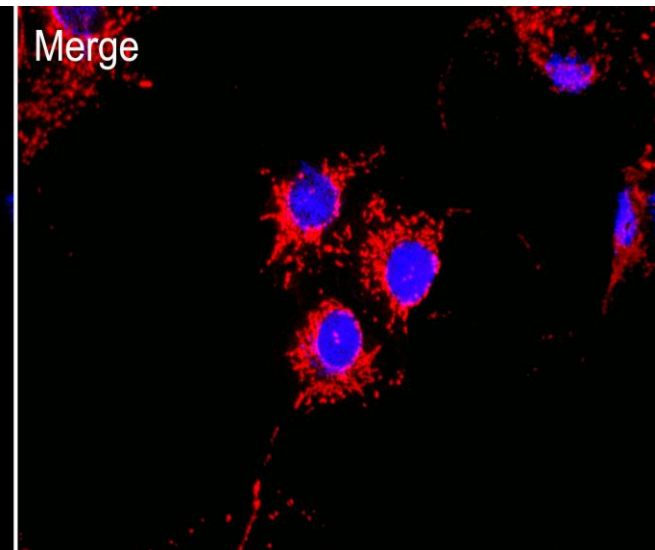
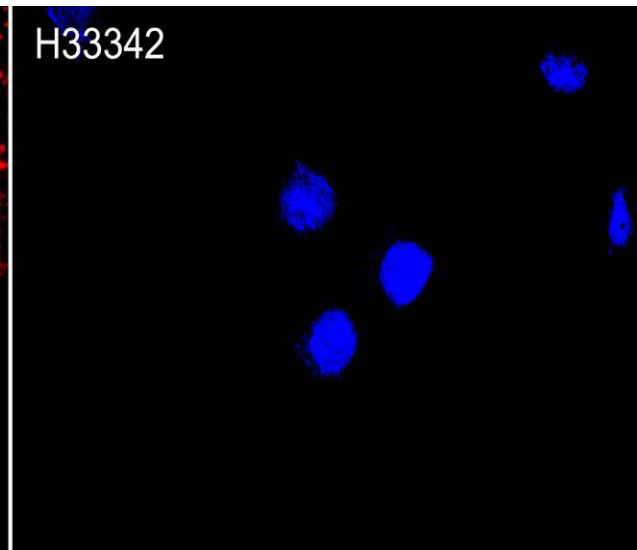
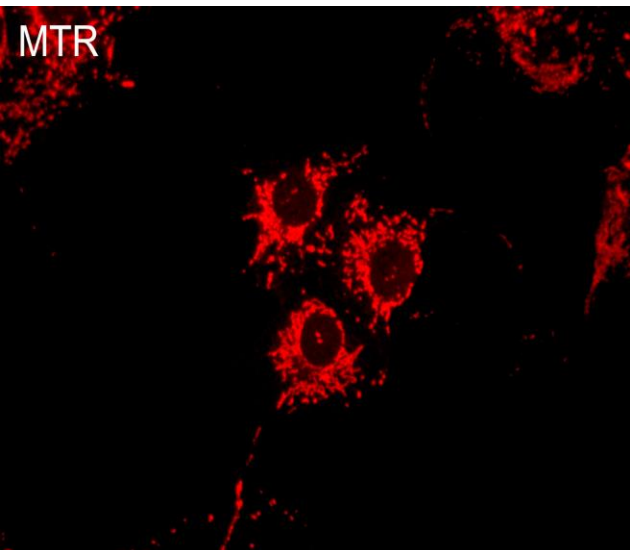


Subcellular localization of organelle (Transfection):

COS7 cells

MTR: MitoTracker Red

DsRed2-Mito: pDsRed2-Mito vector

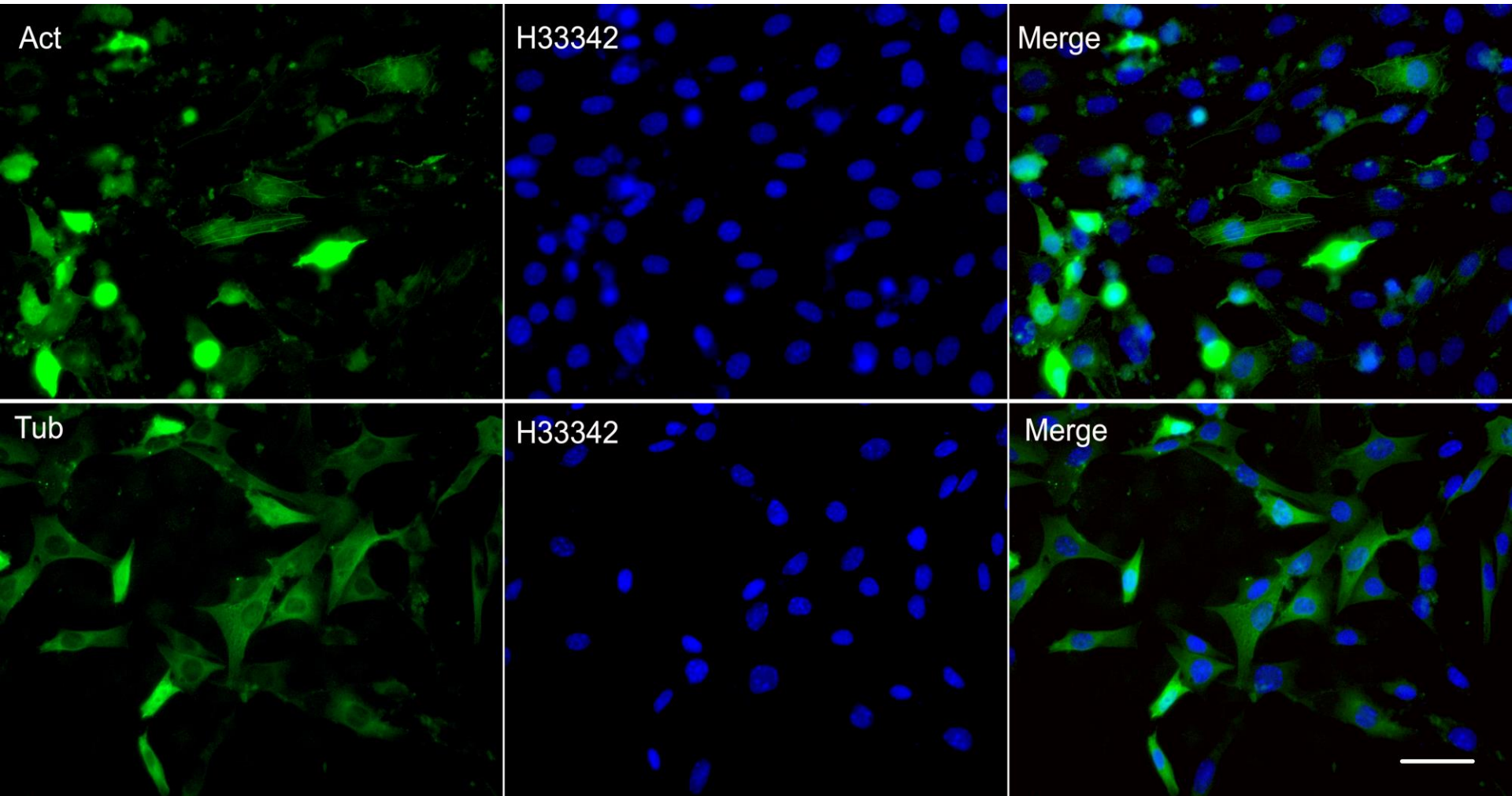


Transfection of subcellular localization vectors:

NIH 3T3 cells

Act: pEYFP-Actin

Tub: pEYFP-Tubulin



Scale bar=50 μ m

醫學卓越研究中心暑期研習會

- 6月26日(五) 截止報名
- 6月30日(二)公佈入選同學名單並通知入選同學
- 7月 1日起(彈性日期)入選同學進入各核心實驗室參與研究
- 下一學年度開學後，一個月內繳交研究學習成果報告 (10 月15日截止)

參與核心實驗室研究注意事項

- 暑期結束後，同學繳交研究學習成果書面報告及口頭發表報告，書面報告格式比照國科會大專學生參與專題研究計畫研究成果報告。而口頭報告之內容安排請準備Powerpoint 檔(10分鐘為限)。
- 醫學系同學可以申請[醫學資源利用實習]選修課程，參與研究兩個月可抵兩學分。
- 同學之研究學習成果評比，除書面報告審查外，將以口頭發表報告(時間另定)，由醫學卓越研究中心委員會議審查評定，擇優予與頒獎鼓勵。

獎勵辦法

- 研究傑出獎：
四名，每名壹萬五千圓整
- 研究優良獎：
四名，每名壹萬圓整
- 佳作：
若干名，每名五千圓整



一分耕耘，一分收穫！
同學的努力將會獲得肯定！！

醫學卓越研究中心第三屆暑期研習營頒獎



醫學卓越研究中心第四屆暑期研習營頒獎

