



石蜡切片免疫荧光实验报告

1. 实验器材及试剂

1.1 实验器材

名称	厂家	型号
脱水机	DIAPATH	Donatello
包埋机	武汉俊杰电子有限公司	JB-P5
病理切片机	上海徕卡仪器有限公司	RM2016
冻台	武汉俊杰电子有限公司	JB-L5
组织摊片机	浙江金华市科迪仪器设备有限公司	KD-P
烤箱	上海慧泰仪器制造有限公司	DHG-9140A
载玻片	Servicebio	
盖玻片	江苏世泰实验器材有限公司	10212432C
微波炉	格兰仕微波炉电器有限公司	P70D20TL-P4
脱色摇床	Servicebio	TSY-B
涡旋混合器	Servicebio	MX-F
掌上离心机	Servicebio	D1008E
移液枪	Dragon	KE0003087/KA0056573
组化笔	Servicebio	G6100
正置荧光显微镜	日本尼康	NIKON ECLIPSE C1
成像系统	日本尼康	NIKON DS-U3

1.2 主要实验试剂

试剂	厂家	货号	稀释比
无水乙醇	国药集团化学试剂有限公司	100092183	
环保型脱蜡液	武汉赛维尔生物	G1128	
EDTA (PH8.0) 抗原修复液	Servicebio	G1206	
EDTA (PH9.0) 抗原修复液	Servicebio	G1203	
柠檬酸 (PH6.0) 抗原修复液	Servicebio	G1202	
PBS 缓冲液	Servicebio	G0002	
自发荧光淬灭剂	Servicebio	G1221	
BSA	Servicebio	G5001	

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一抗

荧光二抗

Servicebio

DAPI

Servicebio

G1012

抗荧光淬灭封片剂

Servicebio

G1401

2. 石蜡切片免疫荧光实验步骤

2.1 石蜡切片脱蜡至水：依次将切片放入环保型脱蜡液 10min-环保型脱蜡液 10min-环保型脱蜡液 10min-无水乙醇 I 5min-无水乙醇 II 5min-无水乙醇 III 5min-蒸馏水洗。

2.2 抗原修复：组织切片置于盛满 EDTA 抗原修复缓冲液 (PH8.0) 的修复盒中于微波炉内进行抗原修复。中火 8min 至沸，停火 8min，再转中低火 7min，，此过程中应防止缓冲液过度蒸发，切勿干片。自然冷却后将玻片置于 PBS (PH7.4) 中在脱色摇床上晃动洗涤 3 次，每次 5min。

2.3 画圈血清封闭：切片稍甩干后用组化笔在组织周围画圈（防止抗体流走），甩干 PBS，滴加 BSA，封闭 30min。（一抗是山羊来源用 10% 驴血清封闭，一抗其它来源的用 3% BSA 封闭）

2.4 加一抗：轻轻甩掉封闭液，在切片上滴加 PBS 按一定比例配好的一抗，切片平放于湿盒内 4℃ 孵育过夜。（湿盒内加少量水防止抗体蒸发）

2.5 加二抗：玻片置于 PBS (PH7.4) 中在脱色摇床上晃动洗涤 3 次，每次 5min。切片稍甩干后在圈内滴加与一抗相应种属的二抗覆盖组织，避光室温孵育 50min。

2.6 DAPI 复染细胞核：玻片置于 PBS (PH7.4) 中在脱色摇床上晃动洗涤 3 次，每次 5min。切片稍甩干后在圈内滴加 DAPI 染液，避光室温孵育 10min。

2.7 淬灭组织自发荧光：玻片置于 PBS (PH7.4) 中在脱色摇床上晃动洗涤 3 次，每次 5min。在圈内加入自发荧光淬灭剂 5min，流水冲洗 10min。

2.8 封片：切片稍甩干后用抗荧光淬灭封片剂封片。

2.9 镜检拍照：切片于荧光显微镜下观察并采集图像。（DAPI 紫外激发波长 330-380nm，发射波长 420nm，发蓝光；FITC 激发波长 465-495nm，发射波长 515-555 nm，发绿光；CY3 激发波长 510-560，发射波长 590nm，发红光。

3. 石蜡切片免疫荧光结果判读

DAPI 染出来的细胞核在紫外的激发下为蓝色，阳性表达为相应荧光素标记的红光或绿光。



Immunofluorescence Protocol (Paraffin-slides)

1. Apparatus and Reagents

1.1 Apparatus

Name	Producer	Model
Dehydrator	DIAPATH	Donatello
Paraffin embedding machine	Wuhan Junjie Electronics Co., Ltd.	JB-P5
pathology slicer	Leica	RM2016
Frozen machine	Wuhan Junjie Electronics Co., Ltd.	JB-L5
Water bath-slide drier	Zhejiang Jinhua Kedi Instrumental Equipment Co., Ltd.	KD-P
Oven	Shanghai Huitai Instrument Manufacturing Co., Ltd.	DHG-9140A
Glass microscope slides	Servicebio	
Coverslips	CITOTEST	10212432C
Microwave	Glanze	P70D20TL-P4
Rocker	Servicebio	TSY-B
Vortex	Servicebio	MX-F
Micro-centrifuge	Servicebio	D1008E
Pipettor	Dragon	KE0003087/KA0056573
Liquid blocker pen	Servicebio	G6100
Ortho-Fluorescent Microscopy	Nikon	NIKON ECLIPSE C1
Imaging system	Nikon	NIKON DS-U3

1.2 Major reagents

Name	Producer	Code	Dilution
Ethanol	SCRC	100092183	
Biodewax and Clear Solution	SERVICEBIO	G1128	
EDTA antigen	Servicebio	G1206	
retrieval solution (pH 8.0)			
EDTA antigen retrieval	Servicebio	G1203	
solution (pH 9.0)			

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Sodium citrate antigen retrieval solution (pH 6.0)	Servicebio	G1202
PBS solution	Servicebio	G0002
Spontaneous fluorescence quenching reagent	Servicebio	G1221
BSA	Servicebio	G5001
Primary antibody		
Fluorescent-labelled secondary antibody		
DAPI	Servicebio	G1012
Anti-fade mounting medium	Servicebio	G1401

2. Procedure

2.1 Deparaffinize and rehydrate: Incubate sections in 3 changes of Biodewax and Clear Solution, 10 min each. Dehydrate in 3 changes of pure ethanol for 5 min. Wash in distilled water.

2.2 Antigen retrieval: Immerse the slides in EDTA antigen retrieval buffer (pH 8.0) and maintain at a sub-boiling temperature for 8 min, standing for 8 min and then followed by another sub-boiling temperature for 7 min. Be sure to prevent buffer solution evaporate. Let air cooling. Wash three times with PBS (pH 7.4) in a Rocker device, 5 min each. Use the right antigen retrieval buffer and heat extent according to tissue characteristics.

2.3 Circle and Serum blocking: Eliminate obvious liquid, mark the objective tissue with liquid blocker pen. Add 3% BSA to cover the marked tissue to block non-specific binding for 30 min. Cover objective area with 10% donkey serum (for the case of primary antibody originated from goat) or 3% BSA (for the case of primary antibody originated from others)

2.4 Primary antibody: Throw away the blocking solution slightly. Incubate slides with primary antibody (diluted with PBS appropriately) overnight at 4 °C, placed in a wet box containing a little water.

2.5 Secondary antibody: Wash slides three times with PBS (pH 7.4) in a Rocker device, 5 min each. Then throw away liquid slightly. Cover objective tissue with secondary antibody (appropriately respond to primary antibody in species), incubate at room temperature for 50 min in dark condition.

2.6 DAPI counterstain in nucleus: Wash three times with PBS (pH 7.4) in a Rocker device, 5 min each. Then incubate with DAPI solution at room temperature for 10 min, kept in dark place.

2.7 Spontaneous fluorescence quenching : wash three times with PBS (pH 7.4) in a Rocker device, 5 min each. Add spontaneous fluorescence quenching reagent to incubate for 5 min. Wash in



running tap water for 10 min.

2.8 Mount: Throw away liquid slightly, then cover slip with anti-fade mounting medium.

2.9 Microscopy detection and collect images by Fluorescent Microscopy. DAPI glows blue by UV excitation wavelength 330-380 nm and emission wavelength 420 nm; FITC glows green by excitation wavelength 465-495 nm and emission wavelength 515-555 nm; CY3 glows red by excitation wavelength 510-560 nm and emission wavelength 590 nm.

3. Results

Nucleus is blue by labeling with DAPI. Positive cells are green or red according to the fluorescent labels used.