



细菌涂片荧光探针原位杂交（FISH）实验报告

1. 实验器材及试剂

1.1. 实验器材

名称	厂家	型号
盖玻片	江苏世泰实验器材有限公司谷歌生物	10212432C
无酶离心管	Servicebio	EP-150-M
摇床(钟摆式)	Servicebio	TSY-B
涡旋混匀器	Servicebio	MV-100
移液枪	Dragon	KE0003087/KA0056573
免疫组化笔	Servicebio	G6100
冰箱	青岛海尔股份有限公司	BCD-192TGN
倒置荧光显微镜	日本尼康	NIKON ECLIPSE TI-SR
成像系统	日本尼康	NIKON DS-U3
恒温箱	LABOTERY	GSP-70
高压灭菌锅	松下健康医疗	MLS-3751L-PC

1.2. 主要实验试剂

试剂	厂家	货号	稀释比
DEPC	Amresco	E174	
4%多聚甲醛（DEPC 水）	Servicebio	G1113	
无水乙醇	国药集团化学试剂有限公司	100092683	
PBS	Servicebio	G0002	
20×SSC 洗脱液	Servicebio	G3016-4	
BSA	Servicebio	G5001	
蛋白酶 K	Servicebio	G1234	
DAPI	Servicebio	G1012	
抗荧光淬灭封片剂	Servicebio	G1401	
杂交缓冲液	Servicebio	G3016-3	

2. 细菌涂片荧光探针原位杂交实验步骤

2.1. 细菌稀释涂片：原始浓度细菌液用灭菌水稀释____倍，后取一定量涂抹在载玻片上，风干。

2.2. 细菌涂片固定：涂片置于 4%多聚甲醛（DEPC）固定 20min，于 PBS（PH7.4）中在脱色摇床上晃动洗涤 3 次，每次 5min。

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Add: 5th Floor, C22 Building, Biopark, No. 388 Gaoxin 2nd Road, East Lake High-tech Developing Zone, Wuhan, Hubei, China, 430079 Website: <http://www.servicebio.com> Tel: 027-5111-3188



2.3.消化通透：涂片浸入修复液中 90°10min。基因笔画圈，根据不同组织不同指标特性，滴加蛋白酶 K（20ug/ml）消化_____。纯水冲洗后 PBS 洗 3 次×5min。.

2.4.预杂交：滴加预杂交液 37°恒温箱 1h。

2.5.杂交：倾去预杂交液，滴加杂交液（含探针____浓度____），____度杂交过夜。

2.6.杂交后洗涤：洗去杂交液，2×SSC，37°C 洗 10min，1×SSC，37°C 洗 2×5min，0.5×SSC 37°洗 10min。若非特异杂交体较多，可以增加甲酰胺洗涤

2.7.镜检拍照：切片于尼康正置荧光显微镜下观察并采集图像。（紫外激发波长 330-380nm，发射波长 420nm,发蓝光；FAM(488)绿光激发波长 465-495nm，发射波长 515-555 nm，发绿光；CY3 红光激发波长 510-560，发射波长 590nm，发红光。）

3.细菌涂片荧光探针原位杂交实验结果判读

阳性表达为相应荧光素标记的荧光。FAM(488)为绿光，cy3 为红光。不同颜色的荧光代表不同类型的菌种。根据表达量不同荧光亮度有强弱。

注：上述涉及到的所有试剂，仪器等在 RNA 原位杂交实验时都需使用 DEPC 处理后的 Rnase free 环境。

附表 1 探针信息



Bacterial smear slide –fluorescence probe-FISH protocol

1. Apparatus and reagents

1.1 Apparatus

Name	Producer	Model
Coverslip	Citotest	10212432C
Enzyme-free centrifuge tube	Servicebio	EP-150-M
Shaker	Servicebio	TSY-B
Vortex	Servicebio	MV-100
Pipettor	Dragon	KE0003087/KA0056573
Liquid Blocker PAP Pen	Servicebio	G6100
Refrigerator	HAIER	BCD-192TGN
Microscopy	Nikon	NIKON ECLIPSE CI
Imaging system	Nikon	NIKON DS-U3
Incubator	LABOTERY	GSP-70
Autoclave	PANASONIC	MLS-3751L-PC

1.2 Major reagents

reagent	manufacturer	article number
DEPC	Amresco	E174
4% of paraformaldehyde (DEPC water)	Servicebio	G1113
Ethanol	SCRC	100092683
PBS	Servicebio	G0002
20×SSC solution	Servicebio	G3016-4
BSA	Servicebio	G5001
Proteinase K	Servicebio	G1234
DAPI	Servicebio	G1012
Anti-fluorescence quenching sealing tablets	Servicebio	G1401
Hybridization buffer	Servicebio	G3016-3

2. The steps of the experiment

2.1 **Bacterial smear slide preparation:** bacterial solution was diluted with sterilized water at the ratio of, and then smeared onto glass slides, air-dried.

2.2. **Bacterial smear slide fixation:** bacterial smear slide fixed in 4% paraformaldehyde (DEPC) for 20 min, wash 3 times with PBS (pH 7.4) in a decolorizing shaker for 5 min each time.

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2.3. **Digestion:** mark the objective tissue with liquid blocker pen, according to the characteristics of different tissues and different indicators, Add proteinase K (20 ug/ml) to cover tissues and incubate at 37°C for _____ minutes. Wash in sterilized water, then washed three times in PBS, 5 min each.

2.4. **Prehybridization:** add hybridization buffer onto specimen and incubate at 37°C for 1h.

2.5. **Hybridization:** remove the pre-hybridization solution, add the _____ probe hybridization solution with concentration of _____, and incubate the section in a humidity chamber and hybridize overnight at _____°C.

2.6. **Washing:** remove the hybridization solution. Wash sections in 2×SSC for 5 min at 37°C , wash sections in 1×SSC two times for 5 min each at 37°C, and wash in 0.5×SSC for 10 min at room temperature. Formamide washing can be added if there are more non-specific hybrids.

2.7. **Stain cell nuclei (counter stain):** incubate with DAPI for 8min in the dark, and then mounting.

2.8 **Microscopic examination and photography :** to take photos with positive fluorescence microscope. DAPI glows blue by UV excitation wavelength 330-380 nm and emission wavelength 420 nm; FAM 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. Interpretation of the results

The nuclear stained by DAPI were blue under ultraviolet excitation, and the positive expression was a kind of fluorescence labeled by corresponding luciferin. FAM (488) appears green, cy3 appears red. The results of mRNA in situ hybridization were cytoplasmic positive and a few nuclear positive were normal. MicRNA and lncRNA were expressed differently. According to the expression, Different fluorescence brightness is strong or weak.

Note: All reagents, instrument need RNase free.

Attached table 1 probe information.