卢戈碘液（革兰氏染色）

货号：G1066
规格：10mL/100mL/500mL
保存：2-8℃，避光保存，有效期 1 年。

产品介绍：

卢戈碘液又叫鲁哥氏染色液(Lugol's 碘液)，是革兰氏染色中的一种试剂。常联合结晶紫染色液对细菌进行染色；也应用于检测叶片、食物等样品中的淀粉，可将不同聚合度的淀粉染成黑色或蓝黑色；在用于细胞染色中，可以使细胞核着色从而更易观察。

革兰氏染色法是细菌学中广泛使用的一种鉴别染色法，通过结晶紫初染和碘液媒染后，在细胞壁内形成了不溶于水的结晶紫与碘的复合物，革兰氏阳性菌细胞壁较厚，肽聚糖网层次较多且交联致密，脱色液脱色时，肽聚糖脱水使孔径缩小，故保留结晶紫-碘复合物在细胞壁内，呈紫色。革兰氏阴性菌细胞壁薄、外膜层类脂含量高、肽聚糖层薄且交联度差，脱色后类脂外膜迅速溶解，缝隙加大，结晶紫与碘复合物溶出，因此脱色后再经番红复染，呈红色。

操作步骤：（*仅供参考*）

以革兰氏染色为例：

1. 涂片固定

菌液涂片，干燥、固定。固定时通过火焰 3-4 次即可，均匀受热，以载玻片不烫手为宜。

2. 染色

一般包括初染、媒染、脱色、复染等四个步骤，具体操作方法是：

（1）加上结晶紫后，染色 1 分钟，水洗。
（2）加上碘液后染色 1 分钟，水洗。
（3）加上脱色液,摇动玻片,根据涂片厚度,脱色约 20-60 秒，水洗，吸去水分。
（4）加上番红后，染色 1 分钟，水洗。
（5）吸干或在空气中凉干后，油镜镜检。

革兰氏染色的关键在于严格掌握脱色程度，如脱色过度，则阳性菌可被误染为阴性菌；而脱色不够时，阴性菌可被误染为阳性菌。此外，菌龄也影响染色结果，如阳性菌培养时间过长，或已死亡及部分菌体自行溶解，都常呈阴性反应。

3. 结果观察：

革兰氏阳性菌	紫色
革兰氏阴性菌	红色

注意事项：

1. 标本涂片不能太厚，严格按操作要求进行。若涂片较厚，应延长脱色时间，直至脱色液不再出现紫色为止。
2. 玻片通过火焰温度不能太高。
3. 碘液变透明，则不能使用。
4. 水洗时动作要轻柔，沿载玻片对角线方向用洗瓶冲洗，以免把菌体冲掉。

Lugol Solution（Gram Method）

Cat: G1066
Size: 10mL/100mL/500mL
Storage: 2-8℃, avoid light, valid for one year.

Introduction

The Gram Stain is a different staining technique most widely applied in microbiology. Gram staining is based on the ability of bacteria cell wall to retaining the crystal violet dye during solvent treatment. The cell walls for Gram-positive microorganisms have a higher peptidoglycan and lower lipid content than gramnegative bacteria. Bacteria cell walls are stained by the crystal violet. Iodine is subsequently added as a mordant to form the crystal violet-iodine complex so that the dye cannot be removed easily. However, subsequent treatment with a decolorizer dissolves the lipid layer from the gram-negative cells. As a result, the diffusion of the violet-iodine complex is blocked, and the bacteria remain stained. The length of the decolorization is critical in differentiating the gram-positive bacteria from the gram-negative bacteria. Finally, a counterstain of safranin is applied to the smear to give decolorized gram-negative bacteria a pink color.

Lugol Solution(Gram Method) is a reagent recommended for use in qualitative procedures to differentiate gram-negative from gram-positive organisms.

Protocol(*for reference only*)

1. Prepare a Slide Smear:

Prepare a thin smear on clear, dry glass slide. Allow to air dry and fix it over a gentle flame, while moving the slide in a circular fashion to avoid localized overheating.

2. Gram Staining:

1) Flood with Gram's Crystal Violet Solution for 1 min.
2) Wash with tap water.
3) Flood the smear with Gram’s Iodine Solution for 1 min.
4) Pour off the Iodine Solution and gently wash with tap water. Shake off the excess water from the surface.
5) Decolorize with Gram's Decolorizing Solution for 20 to 60 s until the blue dye no longer flows from the smear. Further delay will cause excess decolorization in the gram-positive cells, and the purpose of staining will be defeated. Wash with tap water.
6) Counterstain with Gram's Safranin Solution for 1 min.Wash with tap water.
7) Allow the slide to air dry or blot dry between sheets of clean bibulous paper and view under oil immersion lens.

Result

Gram-positive Organisms	Bluish Purple
Gram-negative Organisms	Pinkish Red

Note

1. The smear of the specimen shall not be too thick and shall be carried out strictly with the operation requirements. If the smear is thick, the decolorization time should be extended until purple no longer appears.
2. The temperature of the slide through the flame shall not be too high.
3. If the Iodine Solution becomes transparent, it cannot be used.
4. When washing with water, the action should be gentle to avoid washing off the bacteria.