V02

黑色素脂褐素染色试剂盒（Schmorl 法）

货号：G2033
规格：2×50mL
保存：2-8℃，避光保存，有效期 1 年。

产品组成：

名称		2×50mL	保存
试剂(A)： Schmorl 染色液	A1: Schmorl 染色液 A	25mL	室温，避光
	A2: Schmorl 染色液 B	25mL	2-8℃，避光
临用前，取 A1、A2 等量混合，即为 Schmorl 染色液，不宜提前配制。			
试剂(B): 复染液		50mL	室温，避光

产品介绍：

黑色素属于非血源性内生色素，是一组颜色从浅棕色到黑色的色素。这种色素通常出现在皮肤、眼睛、大脑的黑质和毛囊中。脂褐素是具有颗粒状的褐黄色色素，由含有脂肪的残存物和溶酶体消化物组成，被认为是由脂质和脂蛋白氧化产生的。脂褐素氧化过程是缓慢的、逐步发生的，因此色素会呈现出不同的染色反应、不同的颜色，形状和大小也变化不一。

黑色素脂褐素染色试剂盒(Schmorl 法)利用黑色素和脂褐素具有强大的还原性，可将高铁离子还原为亚铁离子，再与铁氰化钾反应呈暗蓝黑色。Schmorl 法可显示任何能还原高铁离子的物质，故而对黑色素和脂褐素不是特异性的。根据不同的组织、色素沉积的位置和分布情况以及着色深浅等，对还原性色素进行鉴别。也可辅助以氨银法、醛品红法、高碘酸无色品红法等比较观察。

操作步骤：(*仅供参考*)

1、 组织推荐固定于中性福尔马林固定液(10%)中，常规脱水包埋。
2、 石蜡切片厚度 5μm，常规脱蜡至水。冰冻切片推荐厚度 10μm，常规复温复水。
3、 切片滴加 Schmorl 染色液染色 1-5min，蒸馏水冲洗 2-5min。（*见注意事项 4*）
4、 （可选）1%乙酸水溶液浸洗 1-3min，充分去除铁氰化物残留，蒸馏水冲洗 2min。（*见注意事项 5*）
5、 （可选）滴加复染液覆盖切片染色 2-5min，蒸馏水洗 1-2min。
6、 梯度乙醇脱水，二甲苯透明 2 次，中性树胶封固。

染色结果：

黑色素、脂褐素	蓝绿色至暗蓝绿色
细胞核、其他组织	红色

注意事项：

1、 石蜡切片脱蜡应充分，系列乙醇应及时换新。
2、 整个操作过程避免使用铁制品，清洗用水以蒸馏水或去离子水为宜，避免铁残留影响染色。
3、 Schmorl 染色液现用现配，配好后尽快使用。
4、 由于一般组织具有一定还原性，染色时间太长，背景着色过深会影响对比观察。控制染色在恰当的时间内，染色至脂褐素清晰而背景浅淡为佳。一般染色 1-3min 即可。
5、 1%乙酸水溶液为可选方案，有助于去除多余的铁氰化物残留。
6、 为了您的健康和安全，请穿实验服并戴一次性手套操作。

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Melanin And Lipofuscin Stain Kit(Schmorl Method)

Cat: G2033
Size: 2×50mL
Storage: 2-8℃,avoid light, valid for 1 year.

Kit Components

Reagent		2×50mL	Storage
Reagent(A):Schmorl Stain Solution	A1:Schmorl Stain Solution A	25mL	RT, avoid light
	A2:Schmorl Stain Solution B	25mL	2-8℃, avoid light
Before use, mix equal parts of A1 and A2 to form Schmorl Stain. It is not suitable to prepare in advance.			
Reagent(B): Re-dye Solution		50mL	RT, avoid light

Introduction

Melanin is a kind of Nonhematogenous endogenous pigment, which is a group of pigments from light brown to black. This pigment is usually found in the skin, eyes, the substantia nigra of the brain and hair follicles. Lipofuscin is a granular brown yellow pigment, which is composed of the remains containing fat and lysosomal digests. It is believed that lipofuscin is produced by the oxidation of lipids and lipoproteins. The oxidation process of lipofuscin is slow and gradual, so the pigment will show different dyeing reactions, different colors, and different shapes and sizes.

The principle of Melanin And Lipofuscin Stain Kit(Schmorl Method) is that melanin and lipofuscin has a strong reduction, can reduce high iron ions to ferrous ions, and then react with potassium ferricyanide is dark blue and black. The Schmorl method can show any material that can reduce high iron ions, so it is not specific for melanin and lipofuscin. Reduced pigments were identified according to different tissues, location and distribution of pigment deposits and coloring depth. It can also assist with ammonia silver method, aldehyde red method, high iodine acid colorless red method and other comparative observation.

Protocol(*for reference only*)

1. Fix tissue in the neutral formalin fixative solution (10%), conventional dehydration and embedding.
2. The thickness of paraffin section is recommended to 5um, and dewaxing to water conventionally. Frozen section is recommended to 10um, then soak sections in distilled water to restore to room temperature.
3. Drop the Schmorl Stain Solution onto the section and stain for 1-5min. Rinsed in distilled water for 2-5min.(*see note 4*)
4. (Optional) Soak in 1% acetic acid solution for 1-3min to remove ferricyanide residue fully, rinse in distilled water for 2min.(*see note 5*)
5. (Optional) Dye with Re-dye Solution for 2-5min.Rinse in distilled water for 2-5min fully .
6. Dehydrate by gradient ethanol, transparent by xylene twice and seal with neutral gum.

Result

Melanin, lipofuscin	Blue-green to Dark Blue-green
Nucleus and other Tissues	Red

Note

1. Slices should be thoroughly dewaxed, and ethanol should be replaced in a timely manner.
2. Avoid using iron products throughout the entire operation process, and use distilled water for cleaning to avoid false positives caused by iron residues.
3. Prepare Schmorl Stain Solution when use. It is not suitable to prepare in advance.
4. Because the general tissue has a certain reducibility, the longer the staining time, the darker the background coloration. Control staining in the appropriate time, until the lipofuscin is clear and the background is light. Generally, staining 1-3min is enough.
5. 1% aqueous acetic acid solution is optional to remove excess ferricyanide residues.
6. For your health and safety, please wear laboratory clothes and disposable gloves for operation.