

## 钙盐染色试剂盒(茜素红 S 法)

货号: G3281

规格: 2×50mL

保存: 2-8°C, 避光保存, 有效期6个月。

### 产品组成:

名称	2×50mL	保存
试剂(A): 茜素红S染色液	50mL	2-8°C, 避光
试剂(B): 固绿染色液	50mL	室温, 避光

### 产品介绍:

钙在人体内大量存在, 构成骨骼作为支持人体的支架, 在分泌、运送、肌肉收缩、神经传导等也起重要作用。钙在机体内以两种形式存在, 一种是离子钙, 存在血液循环内, 即所谓血钙; 另一种是结合钙, 和蛋白、碳酸或磷酸结合而沉着在组织内。除骨骼和牙齿外, 正常时钙渗透在所有组织和细胞中, 一般不以固体状态出现在组织内。但在某些情况下, 钙析出成固体并沉着于组织内, 则为病理性钙盐沉着。沉着的钙盐主要是磷酸钙, 其次为碳酸钙。钙盐通常是单折射的, 但草酸钙是双折射的。当使用HE染色时, 钙一般呈紫蓝色。许多染料可以与钙形成螯合物, 包括茜素红S、红紫素、核固红等。茜素红S属一种蒽醌类衍生物, 是茜素磺酸钠盐, 它能与碳酸钙或磷酸钙中的钙盐螯合形成橙红色复合物。一般来说这些染料在识别中至大量的钙时, 效果优于轻微染色的微量钙沉积。但茜素红S往往对少量的沉积物可得到更可靠的结果。

钙盐染色常用方法有硝酸银法和茜素红S法, 本试剂盒采用茜素红S和固绿搭配, 钙盐和茜素红S结合形成橘红色沉淀, 适用于少量钙盐组织的染色。

### 自备材料:

10%中性福尔马林、系列乙醇、蒸馏水、光学显微镜

### 操作步骤: (仅供参考)

1. 组织固定于10%中性福尔马林, 常规脱水包埋。
2. 切片脱蜡至95%乙醇。载玻片竖立放置, 风干。
3. 切片用茜素红S染色液滴染1-5min (见注意事项1)。蒸馏水快速冲洗。
4. 入固绿染色液复染1min。蒸馏水冲洗3次, 每次1min。
5. 常规脱水透明, 中性树胶封固。

### 染色结果:

钙沉积物	橙红色
背景	绿色

### 注意事项:

1. 茜素红S 的染色时间要根据钙盐的含量来确定, 应在显微镜下观察。钙盐呈深橙红色即取出水洗。如染色时间过长, 就出现弥散现象, 一般1~2min即可。
2. 经过茜素红S 染色液染色后, 钙沉积物是双折射的。
3. 茜素红 S 法在辨别和检测少量钙时特别有用, 如检查肾中的异常钙化(尿钙过多)。

## Calcium Stain Kit (Alizarin Red S Method)

**Cat:** G3281

**Size:** 2×50mL

**Storage:** 2-8°C, avoid light, valid for 6 months.

### Kit Components

Reagent	2×50mL	Storage
Reagent (A): Alizarin Red S Staining Solution	50mL	2-8°C, avoid light
Reagent (B): Fast Green Solution	50mL	RT, avoid light

### Introduction

Calcium is abundant in human body, which form bones as a scaffold to support human body. Calcium plays an important role in secretion, transportation, muscle contraction, nerve conduction and so on. Calcium exists in two forms in the body, one is ionic calcium, which exists in the blood circulation, namely blood calcium; the other is bound calcium, which combines with protein, carbonic acid or phosphoric acid and sinks in the tissue. Except for bones and teeth, calcium normally permeates all tissues and cells, and generally does not appear in solid state in tissues. However, in some cases, calcium precipitates into a solid and settles in the tissue, which is pathological calcium deposition. When HE staining is used, calcium is usually purple blue. Many dyes can form chelates with calcium, including Alizarin Red S, purpurin, nuclear fast red, etc. Alizarin red S is an anthraquinone derivative, which is sodium alizarin sulfonate. It can chelate with calcium carbonate or calcium phosphate to form orange red complex. Generally speaking, the effect of these dyes is better than that of slight staining when they are used to recognize large amount of calcium. But Alizarin Red S can get more reliable results for a small amount of sediment.

Silver nitrate method and alizarin red S method are commonly used in calcium salt staining. The kit used Alizarin Red S and Fast Green in this kit, which is especially suitable for the dyeing of a small amount of calcium salt tissue.

### Self Provided Materials

10% neutral formalin fixative(NBF), Series Ethanol, Tap water, Microscope.

### Protocol(for reference only)

1. Fix the tissue with 10%NBF and conventionally dehydrate and embed.
2. Cut the section into 5 $\mu$ m, conventionally dewax to 95% ethanol and dry the section up by air.
3. Dye with Alizarin Red S Staining Solution for 1-5min.(See note 1) Rinse with water for at least 1 min.
4. Re-dye with Fast Green Solution for 1min. Rinse with running water for three times and 1min each.
5. Conventionally dehydrate, transparent and seal with resinene.

### Result

Calcium Precipitation	Orange Red
Background	Green

### Note

1. The dyeing time of Alizarin Red S should be determined according to the content of calcium salt, and should be observed under the microscope. When the calcium salt is dark orange red, take it out and wash it with water. If the dyeing time is too long, dispersion will appear, generally 1-2mins.
2. After dyeing with Alizarin Red S, the calcium deposits are birefringent.
3. This method is particularly useful in identifying and detecting small amounts of calcium, such as abnormal calcium in the kidney (excessive calcium in the urine), which is shown as orange red.