

Ethidium Bromide

Sybr Safe has been shown to be more effective in staining DNA gels while avoiding the mutagenic effects of ethidium bromide.

In an undergraduate case study at the MIT, Sybr Safe has been shown to be more effective in staining DNA gels than ethidium bromide, a very dangerous and toxic mutagen. Independent cell assays also showed that SybrSafe™ is not suspected to be a carcinogen in comparison to ethidium bromide. Moreover, although SybrSafe™ may have higher up front costs, there is no associated disposal cost and as of August 2005, the Massachusetts Water Resources Authority has granted MIT permission to dispose of this by sewer. The case study showed that SybrSafe was not more effective in staining RNA gels.

Leite, Susan. Replacing Ethidium Bromide in an Undergraduate Laboratory: SYBR Safe® Case Study. MIT EHS office. November 2005.

Sorocco, Debra. SYBR Safe™: A Case Study in Reducing Workplace Hazardous Chemicals. Spring 2004.  
[http://courses.dce.harvard.edu/~environment/em2\\_5\\_19\\_04/Sorocco\\_SYBR.ppt#1](http://courses.dce.harvard.edu/~environment/em2_5_19_04/Sorocco_SYBR.ppt#1)

A case study using Sybr Safe™ showed that SybrSafe™ had less background and stronger fluorescence than ethidium bromide in staining DNA gels. Although direct costs are higher, the disposal costs in comparison to that of ethidium bromide are much lower in addition to the added health and safety benefits from avoiding ethidium bromide.

Sorocco, Debra. SYBR Safe™: A Case Study in Reducing Workplace Hazardous Chemicals. Spring 2004.  
[http://courses.dce.harvard.edu/~environment/em2\\_5\\_19\\_04/Sorocco\\_SYBR.ppt#1](http://courses.dce.harvard.edu/~environment/em2_5_19_04/Sorocco_SYBR.ppt#1)

QIAquick Kits contain a silica-gel– membrane assembly for binding of DNA in high-salt buffer and elution with low-salt buffer or water. It is used in the gel extraction or cleanup of DNA 70 bp to 10 kb. The purification procedure removes primers, nucleotides, enzymes, mineral oil, salts, agarose, ethidium bromide, and other impurities from DNA samples.

“QIAquick Gel Extraction Kit.” 2006 Qiagen.

<http://www1.qiagen.com/Products/DnaCleanup/GelPcrSiCleanupSystems/QIAquickGelExtractionKit.aspx?ShowInfo=1>