

SOLEX All-in-1

Genomic DNA Isolation Kits

INTRODUCTION

SOLEX All-in-1 technology provides a simple, reliable, fast, convenient and inexpensive method for isolation of high-quality DNA. The SOLEX All-in-1 Genomic DNA Isolation Kit is based on a proprietary two-phase partitioning system suitable for nucleic acid extraction. The ready-to-use SOLEX tubes contain all of the reagents needed for nucleic acid isolation. The All-in-1 composition provides simultaneous cell lysis, release and deproteinization of nucleic acids as well as separation of DNA from impurities. The advanced, pre-dispensed formulation and the unique chemistry of the SOLEX system highly simplify the nucleic extraction process and reduce hands-on-time to a minimum.

BASIC PRINCIPLE

Similarly to other commonly used methods, SOLEX All-in-1 technology requires an initial step of mechanical or enzymatic tissue/cell disruption unless easy to disrupt cells are used. All of the disruption methods commonly used are compatible with SOLEX All-in-1 DNA Isolation Kits.

Contrary to other methods, lysis of cellular and organellar membranes, removal of proteins and other contaminants as well as partitioning of the DNA are achieved in a single step. As these processes are simultaneous no viscous lysate is forming. This step takes place under mild conditions without application of any harmful chemicals. As removal of proteins is achieved without application of Proteinase K or any other protease, recovery of intact proteins is also possible.

SOLEX reagents are available as a suspension in a pre-dispensed form, filled in color-coded screw capped centrifuge tubes. The suspension is dissolved after short

heating whereupon it turns into a colloidal system consisting of complexed anionic detergent micelles. After mixing with the biological sample, the micelles form a colloidal emulsion and readily absorb proteins, lipids and other contaminants but not nucleic acids. After a short incubation, the colloidal particles carrying the impurities cluster and separate to an immiscible denser phase. The partitioning is highly selective as the lighter phase contains only salts, nucleotides, amino acids and other small molecules beside nucleic acids.

The phase separation is accelerated by centrifugation. The centrifugation is expediently done under cooling as the lower colloidal phase solidifies once cooled. The solidified colloid is firm with a smooth surface and allows easy separation of the phases. Other than at the sample application step, no pipetting is needed during the whole procedure since even the upper phase can be transferred by decantation.

Ready to use DNA can be recovered from the high-salt upper phase by simple isopropanol precipitation or by the convenient silica-gel spin technology.

SOLEX All-in-1 technology is highly versatile since effective DNA isolation can be achieved in any kind of biological sample. Different compositions of SOLEX reagents have been optimized for use with different sample sources; all formats were created by applying the same principles but taking into account the differences that exist among samples regarding DNA content and possible impurities.

SUMMARY OF PROCEDURE

1. Add the biological sample to the SOLEX tube and mix intensively by vortexing. (When needed, samples can be disrupted in either SOLEX reagents or in liquid nitrogen beforehand.)
2. Incubate at 65°C for 5 -10 minutes. Homogenize the sample by inverting.
3. Centrifuge at 4°C for 3 - 5 minutes in a tabletop centrifuge at highest speed.
4. Obtain the desired DNA by transferring the supernatant into a new centrifuge tube.
5. Proceed to desired DNA work up.

DNA WORK UP OPTIONS

SOLEX SPIN

When adding a special binding buffer to the supernatant, the DNA becomes suitable for binding to silica-gel membrane. Binding – washing - elution of the pre-purified DNA on a silica-gel membrane of a spin column yields high quality genomic DNA in a short time.

SOLEX IPA

The DNA in the supernatant can be precipitated by adding an equal amount of isopropyl alcohol without any further treatment. This method is less convenient; however it is a device free alternative. The yield and quality of the final product are as high as it can be achieved by the SOLEX GOLD method. Furthermore, DNA with very high molecular weight can be isolated this way due to the mild condition of SOLEX purification and the absence of DNA fracturing otherwise caused by the use of silica matrix. The procedure can scale up even to industrial level.

SUMMARY

SOLEX Genomic DNA Isolation Kit is an inexpensive proprietary two-phase partitioning system suitable for isolation of high-quality DNA. This technology is one of the best available methods as it has the following advantages over similar products on the market:

- **Simple:** all of the reagents needed for nucleic acid isolation come in one tube; with optional centrifuging at 4°C, impurities solidify so that DNA is easily obtained from the liquid upper phase;
- **Convenient:** SOLEX reagents come in pre-dispensed formulation in color-coded screw capped centrifuge tubes, with only one step that requires pipetting.
- **Fast:** hands-on-time is reduced to a minimum as genomic DNA can be extracted under 15 minutes.
- **Safe:** partitioning of DNA into the upper phase takes place under mild

conditions without application of any harmful chemicals.

- **Reliable:** every DNA isolation is carried out under the very same, optimized condition as pipetting mistakes are avoided due to the pre-dispensed nature of the formulation.
- **Versatile:** due to the protease-free technology, intact proteins can also be recovered alongside with DNA; different work-up options (no work-up, SOLEX gold or SOLEX silver) are available for the isolated DNA depending on downstream applications. Using SOLEX technology, the same procedure can be used for bacteria, yeast, blood, plant, cultured cells and tissues, etc.
- **Inexpensive:** SOLEX technology makes use of small volumes and relatively low concentrations of inexpensive chemicals. The device free SOLEX Silver kits especially reduce cost and make this new technology extremely competitive.
- **High throughput:** SOLEX technology allows 96 formats processing and suitable for automation.
- **Flexible:** the procedure can scale up even to industrial level. The main components are recyclable.

SOLEX All-in-1 Genomic DNA Kits

Catalog Numbers

DNA Work Up	Pack Size	Bacteria	Blood	Cells & Tissue	Plant & Fungi	Yeast
SPIN	10 preps	MB-L010-G	MB-P010-G	MB-K010-G	MB-Z010-G	MB-S010-G
	50 preps	MB-L050-G	MB-P050-G	MB-K050-G	MB-Z050-G	MB-S050-G
	250 preps	MB-L250-G	MB-P250-G	MB-K250-G	MB-Z250-G	MB-S250-G
IPA	10 preps	MB-L010-S	MB-P010-S	MB-K010-S	MB-Z010-S	MB-S010-S
	50 preps	MB-L050-S	MB-P050-S	MB-K050-S	MB-Z050-S	MB-S050-S
	250 preps	MB-L250-S	MB-P250-S	MB-K250-S	MB-Z250-S	MB-S250-S