

TABLE 7.1 Kits for plasmid preparation and DNA purification

	Mode of action	Suitable for	Contaminants removal	Maximum DNA size
Qiagen Endo Free Plasmid Kit (12362)	Modified alkaline lysis procedure for preparation of plasmid DNA from bacterial cultures. Gravity-flow, anion-exchange filtration through special resins. Contains a highly recommended additional endotoxin removal step.	Plasmid purification	This system can be used instead of CsCl centrifugation and phenol/chloroform extraction. Cellular debris, proteins, carbohydrates, small metabolites, bacterial chromosomal DNA, RNA, dyes, and low-molecular-weight impurities are removed.	Plasmids up to 150 kb can be purified. However, plasmids larger than 45–50 kb may give a reduced elution efficiency.
Elutip-D, (Schleicher & Schuell, 462615)	Ion-exchange chromatography, containing a matrix similar to RPC-5. A prefilter is used if DNA is recovered from standard agarose gels to remove agarose particles.	Can be used as a step in DNA fragment purification. The eluted DNA requires further purification by precipitation and dialysis to remove excess salts.	Because both DNA and RNA bind to the matrix, these cartridges cannot be used to separate DNA from RNA efficiently.	The largest fragment size that can be purified is 50 kb.
BIO 101 GENE CLEAN Spin Turbo (1102-)	DNA is bound to a glass silica column in high concentrations of chaotropic salts and is eluted in a low salt concentration or water.	Final purification of DNA for microinjection.	These columns can be used to remove proteins, carbohydrates, RNA, DNA smaller than 200 bp, residual organic compounds that may be left after phenol/chloroform extractions, salts, agarose and EtBr enzymes, oils, and detergents.	The authors have used these columns for DNA fragments up to 20 kb with great success. According to the manufacturer, they can be used for fragments up to 300 kb.
QIAquick (28704) and QIAEX II (20021) gel extraction kits	DNA purification with spin columns containing a silica-gel membrane. DNA binds to the membrane in the presence of high salt concentrations, and is eluted in Tris buffer or water.	Both kits can be used for extraction of DNA from both standard and LMP agarose gels.	These columns remove salts, enzymes, agarose, dyes, ethidium bromide, oils, and detergents.	QIAquick can only be used for fragments that are a maximum of 10 kb, whereas QIAEX II is suitable for fragments up to 50 kb.
NucleoBond AX 500 Tip (Clontech 4003-1).	NucleoBond kits are based on an anion-exchange system, where a microporous, hydrophilic silica bead resin is packed inside a polypropylene column (tip).	High-copy and low-copy plasmids, cosmids, BACs, and PACs grown from bacterial cultures can be purified using these kits.	The resulting plasmid DNA is as pure as plasmids isolated by traditional CsCl procedures.	PACs and BACs.