Promega

Product Application

DNA Purification from Bone Marrow Aspirate using Maxwell® RSC

Purify high quality, amplifiable DNA from bone marrow aspirates using the Maxwell® RSC System.

Kit: Maxwell® RSC Buffy Coat DNA Kit (Cat.# AS1540)
Maxwell® RSC Blood DNA Kit (Cat.# AS1400)

Analyses: Dye-based quantitation, qPCR

Sample Type(s): Human bone marrow aspirate: <75µl with the Blood DNA Kit or <300µl with the Buffy Coat DNA Kit

Input: 50-300µl

This protocol was developed by Promega Applications Scientists and is intended for research use only.

Users are responsible for determining suitability of the protocol for their application.

For further information see Technical Manual #TM419 or #TM464, available at: **www.promega.com/protocols**

or contact Technical Services at **techserv@promega.com**

Materials Required:

- Maxwell® RSC Instrument (Cat.# AS4500)
- Maxwell® RSC Blood DNA Kit (Cat.# AS1400)
- Maxwell® RSC Buffy Coat DNA Kit (Cat.# AS1540)
- ClickFit Microtube, 1.5ml (Cat.# V4741)
- Heat block set at 56ºC

Best Practice Tip: Bone marrow aspirates are extremely viscous. Consider using wide-bore pipette tips for sample transfer.

Maximum Yield/µl Bone Marrow Protocol:

1. Use the Maxwell® RSC Blood DNA Kit.
2. Aliquot 50-75µl of bone marrow aspirate into a new 1.5ml ClickFit tube.

   Note: Processing sample input volumes greater than 75µl may cause purification failure with the RSC Blood DNA kit.

3. Add 300µl Lysis buffer.
4. Add 30µl Proteinase K solution.
5. Vortex 10 seconds.
6. Incubate at 56°C for 20 minutes.
7. Prepare Maxwell® RSC Blood DNA cartridges as described in TM419, Section 3B.
8. Transfer lysate to well #1 of the Maxwell® RSC Blood DNA cartridge, and complete purifications following TM419, Section 5.

Maximum Sample Volume Protocol:

1. Use the Maxwell® RSC Buffy Coat DNA Kit.
2. Add 50-300µl of bone marrow aspirate directly into well #1 of the Maxwell® RSC Buffy Coat DNA cartridge and mix by pipette at least 10 times.
3. Complete purifications following TM464.

Results:

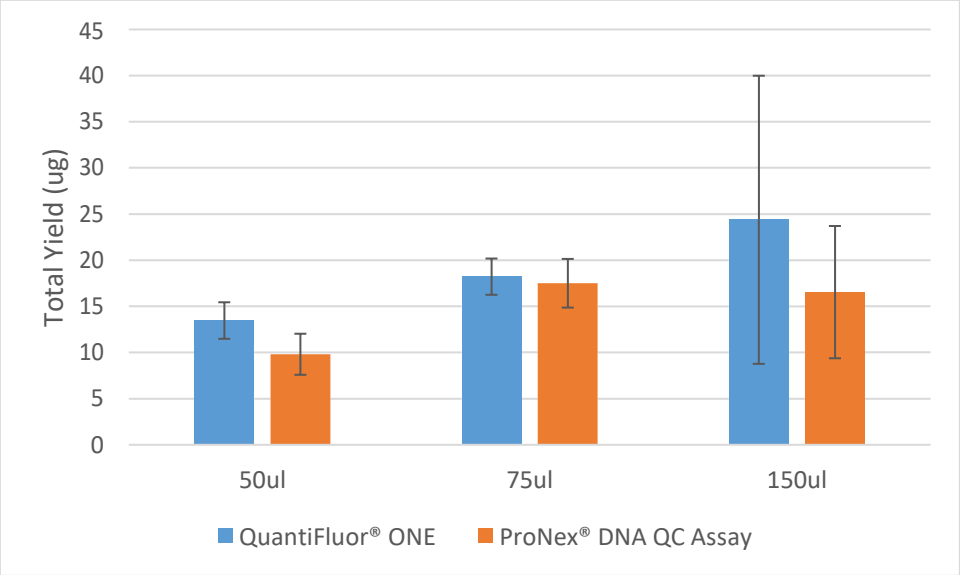

Figure 1: Yields for DNA purification from bone marrow aspirate using the Maxwell® RSC Blood DNA Kit (Cat.# AS1400). Yields determined using dye-based quantitation with QuantiFluor® ONE dsDNA System (Cat.# E4871) and qPCR with ProNex® DNA QC assay ABI7500/7500FAST (Cat.# NG1002)**.** The Maxwell® RSC Blood DNA Kit gives the highest yield per input volume for 50-75µl sample volumes. Using input volumes greater than 75µl results in highly variable yields and may result in complete extraction failure. Data are shown as Mean ± StDev of N=4.

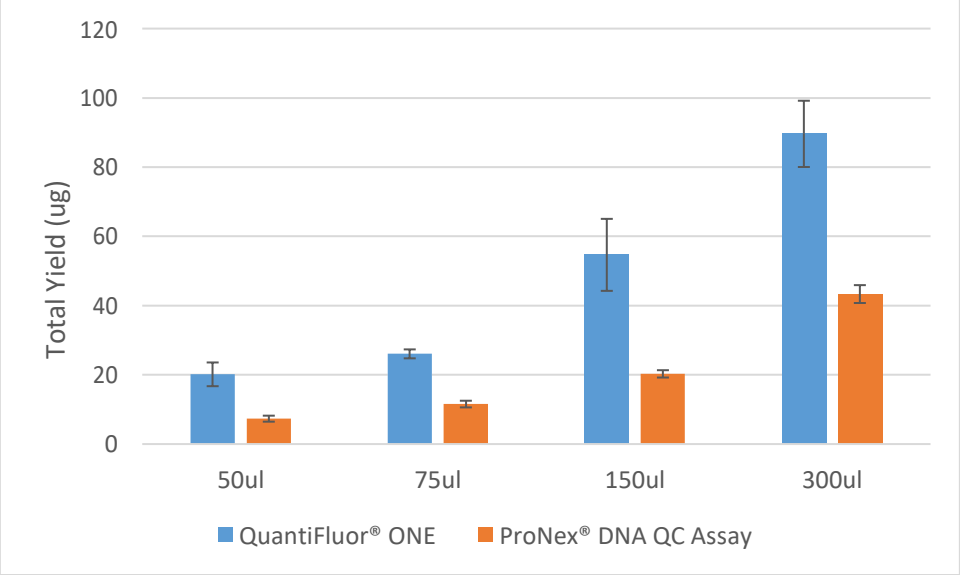

Figure 2: Yields for DNA purification from bone marrow aspirate using the Maxwell® RSC Buffy Coat DNA Kit (Cat. #AS1540). Yields determined using dye-based quantitation with QuantiFluor® ONE dsDNA System (Cat.# E4871) and qPCR with ProNex® DNA QC assay ABI7500/7500FAST (Cat.# NG1002)**.** The Maxwell® RSC Buffy Coat DNA Kit allows for purification from the highest sample input volumes but gives slightly lower yields than the Maxwell® RSC Blood DNA Kit at the 50 and 75µl input volumes. Data are shown as Mean ± StDev of N=4.