



# Forensic Biology Section

## Quality Control of Maxwell kits

### 1. Scope

- 1.1. To verify the quality of the two kits used to extract DNA in the Promega Maxwell RSC48 instrument: the **Casework Extraction Kit** [Extraction buffer, Pro-K, 1-Thioglycerol, Nuclease-free water] and the **Maxwell FSC DNA IQ Casework Kit** [Lysis buffer, Elution buffer, FSC cartridges, Plungers, Elution tubes].
- 1.2. The kits may be quality controlled individually or in batches.

### 2. Safety

- 2.1. Use alcohol to clean up any spills. DO NOT use bleach (bleach may react with Thioglycerol).

### 3. Specimen

- 3.1. Biological material on substrate, such as a bloodstain from an old Proficiency Test.

### 4. Testing

- 4.1. Open the Casework Extraction kits and Maxwell FSC DNA IQ Casework kits and record the lot number for the kits and all the kit contents onto the corresponding Kit Lot Number logs.
- 4.2. If the same lot numbers have been previously tested for quality control, the previous lot number can be assigned to the new shipment.
- 4.3. Otherwise, perform the corresponding Extraction of DNA on Maxwell RSC48 method with one Reagent Blank and one bloodstain punch from an old PT extracted per each lot, using the original components of each kit (cartridges/1-thioglycerol/extraction buffer/lysis buffer/elution buffer).
- 4.4. If additional Pro-K has been prepared, perform the same extraction procedure but substitute the supplemental Pro-K for the original Pro-K.
- 4.5. Quantify the concentration of the DNA in all the eluted extracts using PowerQuant or the Rotor Gene Alu Repeat kit.

### 5. Assessment

- 5.1. For the Maxwell extraction kits to pass the quality control procedure, the following criteria must be met:
  - 5.1.1. The Reagent Blank should produce no quantifiable DNA.
  - 5.1.2. The amount of DNA obtained from the PT bloodstain should be consistent with the amounts previously obtained from the known sample.
- 5.2. If a kit does not pass the quality control procedure, the extractions should be repeated. If a kit does not pass the quality control procedure repeatedly, possible causes must be evaluated and documented.
- 5.3. Results must be verified by a second qualified individual (preferably the DNA Technical Leader). All worksheets must be properly filled out and stored in a Quality Control case folder.



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- 5.4. Once the Maxwell extraction kits pass the quality control procedure, open all the kits with the same lot number and label the components with the appropriate QC lot number and kit expiration date.
- 5.5. Pro-K solution should be stored frozen (-30 °C to -10 °C). Store the other extraction reagents and the cartridges at room temperature in the DNA Extraction Lab area.
- 5.6. Once a kit passes the quality control procedure, all appropriate scientists should be notified (e.g., by email) that the kit has passed QC and is available for use.