

QAS Forensic and Scientific Services

31/10/2007

Automated DNA Extraction with the DNA IQ™ Kit Training Module

1 PURPOSE

After successful completion of the assessment of this module, the staff member will have provided evidence showing the required knowledge and understanding of the automated DNA extraction process using the DNA IQ Kit within the Analytical section of Forensic Biology.

2 PREREQUISITE TRAINING MODULES

- QIS 24450 Operation and Use of the MultiPROBE® II PLUS HT EX Robotic Platform Training Module
QIS 24471 AUSLAB Batch Functionality Analytical Scientists Training Module

3 TRAINING PROTOCOL & ASSESSMENT

The Expected Time frame to achieve competency in this module is 2 weeks

- Read the associated documentation and references.
- Discuss the key issues with a competent trainer.
- Observe and assist the competent trainer with the procedure.
- Perform the procedure under supervision.
- Perform the assessment.

Element of competency		Key Performance Criteria		Assessment Type
1.	Principle of DNA IQ™ Kit	1.1	Chaotropic salts/agents	WQ, OQ
		1.2	Proteinase K	WQ, OQ
		1.3	Dithiothreitol (DTT)	WQ, OQ
		1.4	DNA IQ™ resin	WQ, OQ
		1.5	DNA IQ™ modifications	WQ, OQ
		1.6	Washing	WQ, OQ
		1.7	Elution	WQ, OQ
		1.8	Reagent Preparation	Ob, WQ, OQ
2.	Safety requirements and Quality Control	2.1	Biohazardous material and safety precautions	Ob, WQ, OQ
		2.2	Quality controls	WQ, OQ
		2.3	Decontamination	Ob, WQ, OQ
3.	Actions -Automated Method	3.1	Using the MP II platform	Ob, WQ, OQ
		3.2	Labware required	Ob, WQ, OQ
4.	Actions - AUSLAB	4.1	AUSLAB	Ob, WQ, OQ
		4.2	Platemaps	Ob, WQ, OQ
		4.3	Worksheets	Ob, WQ, OQ
		4.4	Importing Files	Ob, WQ, OQ

Assessment Type

WQ = Written Questions
OQ = Oral Questions
Ob = Observation
V = Viva

Si = Simulation
Sc = Scenario
A = Attendance
D = Diary

O = Other



6.1 Training Checklist

	Trainer name, signature and date	Trainee name, signature and date
Documentation <ul style="list-style-type: none"> • QIS 24897R__ • QIS 17120R__ 		
Associated Safety Discussed <ul style="list-style-type: none"> • DNA IQ™ MSDS 		
Training Resources <ul style="list-style-type: none"> • MultiPROBE® II PLUS HT EX with Gripper Integration Platform 		
Key Performance Criteria		
Comments		

PART B – Demonstrate understanding of underpinning knowledge
(Submit electronically using Part B Answer template [24899](#))

Question 1 (KPC 1.1)

Why are chaotropic salts included in the lysis buffer?

Question 2 (KPC 1.1)

How do chaotropic salts help DNA bind to silica?

Question 3 (KPC1.2)

Why is Proteinase K added to the extraction buffer? What is its mechanism?

Question 4 (KPC 1.3)

What role does DTT play in the DNA IQ extraction?

Question 5 (KPC 1.4)

Is the DNA IQ resin binding selective to the type of DNA? Please explain.

Question 6 (KPC 1.4)

Does DNA IQ isolate all sizes of DNA?

Question 7 (KPC1.5)

What are the major modifications made to the automated DNA IQ extraction program compared with the Promega method? Explain why the changes were made.

Question 8 (KPC 1.5)

Why is the SlicPrep™ 96 device used in our protocol?

Question 9 (KPC 1.6)

How many washes are performed? List the washes performed and explain why they are used.

Question 10 (KPC 1.6)

Explain how inhibitors are removed in the DNA extraction protocol.

Question 11 (KPC 1.7)

Explain the elution process in the DNA IQ method.

Question 12 (KPC1.7)

What can cause lower yields when using the DNA IQ method?

Question 13 (KPC 1.7)

Why does the magnetic pellet that forms in the protocol form a “doughnut” shape rather than a ball?

Question 14 (KPC 1.8)

How often and why do you prepare:

- a) Lysis Buffer
- b) Extraction Buffer?

Question 15 (KPC 1.8)

When do you prepare the Wash buffer?

6.3 Record of Assessment

	Key Performance Criteria	Part A		Part B		Part C	
		Trainer & Date	Result	Assessor & Date	Result	Trainer & Date	Result
1.1	Chaotropic salts/agents		N/A				
1.2	Pro K		N/A				
1.3	Dithiothreitol (DTT)		N/A				
1.4	DNA IQ™ resin		N/A				
1.5	DNA IQ™ modifications		N/A				
1.6	Washing		N/A				
1.7	Elution		N/A				
1.8	Reagent Preparation						
1.9	DNA IQ™ features		N/A				
2.1	Biohazardous material and safety precautions						
2.2	Quality controls		N/A				
2.3	Worksheets						
2.4	Decontaminating						
3.1	Using the MP II platform to perform the automated method						
3.2	Labware required						
4.1	Platemaps						
4.2	AUSLAB						
4.3	Importing results						

NYC = Not yet competent
C= Competent

CTT= Competent to train
N/A = Not Applicable

Comments:

Trainee:

Name Signature: { CONTROL Forms.TextBox.1 \s } Date
completed: { CONTROL Forms.TextBox.1 \s }

Training Coordinator

Name: { CONTROL Forms.TextBox.1 \s } Signature: { CONTROL Forms.TextBox.1 \s }
Date completed: { CONTROL Forms.TextBox.1 \s }

{ CONTROL Forms.CheckBox.1 \s } { CONTROL Forms.CheckBox.1 \s }
{ CONTROL Forms.CheckBox.1 \s }