The Royal College of Pathologists of Australasia

FACULTY OF SCIENCE

TRAINEE HANDBOOK 2019

HAEMATOLOGY

It is essential to read this Handbook in conjunction with the ***Trainee Handbook – Administrative Requirements*** which is relevant to all trainees. This has information about the College's structure and policies, together with details of requirements for registration, training and examination applications.

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Glossary

AHA	Autoimmune Haemolytic Anaemia
APTT	Activated Partial Thromboplastin time
AS ISO	Australian and International Standard
CbD	Case-based Discussion
CPDP	Continuing Professional Development Program
DAGT	Direct Antiglobulin Test
DIC	Disseminated Intravascular Coagulation
DNA	DeoxyriboNucleic Acid
DOPS	Direct Observation of Practical Skills
EBLP	Evidence Based Laboratory Practice
FSc	Faculty of Science
FVL	Factro V Leiden
g	Acceleration due to gravity
HDN	Haemolytic Disease of the Newborn
HFE	Haemochromatosis Gene
ICSH	International Council for Standardisation in Haematology
IgA	Immunoglobulin A
ISI	International Sensitivity Index
INR	International Normalised Ratio
JAK2	Janus Kinase 2
MALDI	Matrix Assisted LASER Desorption/Ionisation
MSc	Master of Science
MTHFR	Methylenetetrahydrofolate Reductase
NATA	National Association of Testing Authorities
NPAAC	National Pathology Accreditation Advisory Council
PCR	Polymerase Chain Reaction
PhD	Doctorate of Philosophy
PFA	Platelet Function Testing
PT	Prothombin Time
QA	Quality Assurance
QC	Quality Control
RCPA	Royal College of Pathologists of Australasia
RPM	Revolutions per Minute
TT	Thrombin Time
WHO	World Health Organisation

SECTION I

Introduction

The Faculty of Science provides a structured Fellowship program to enable scientists to demonstrate competence in the following areas to a standard specified by the RCPA.

1. Use professional judgement in advising clinicians on the requirements for investigations and in carrying out these investigations for patients as a member of the team providing clinical care.
2. Maintenance of safe and effective service through the use of relevant quality assurance and audit tools, to appropriate national standards.
3. Undertake scientific research, including the evaluation of scientific literature, to introduce new scientific procedures or solve diagnostic or therapeutic problems within their field.
4. Apply the principles of evidence-based laboratory practice to inform health care decisions
5. Provide innovative and strategic direction to the operation of the laboratory.

The scientist will complete the training requirements specified in the curriculum, and will demonstrate competence and attainment of learning outcomes by satisfying all assessment requirements to the standards set by the Faculty of Science, as defined in the curriculum.

General aims and structure of the training program

The general aims of the training program are to provide a structured pathway for scientists working in a Pathology context to meet the standards defined by the RCPA of a leading Scientist in their field.

These general aims of the training program relate to three areas of professional activity of a leading scientist, i.e.,

Discipline specific clinical laboratory functions
Research
Innovation, Development and Leadership

The Faculty of Science curriculum in Haematology comprises standards in these three areas as follows:

1. Research standards

- Demonstrate highly developed skills in research, management of time and resources and communication of outcomes and data, whilst independently developing theoretical concepts, acquiring new knowledge and testing hypotheses in the field of Haematology.

2. Clinical laboratory standards

- Demonstrate competence in applying the techniques, technology and reporting associated with a Haematology laboratory with a broad case-mix of patients.
- Apply the theoretical and technical expertise in laboratory techniques required to lead the activities of a Haematology laboratory.

3. Innovation, development and leadership standards

- Apply, implement and evaluate strategies that guarantee quality assurance, compliance, safety and efficient use of resources fundamental to the operation of a Haematology laboratory.
- Demonstrate a commitment to the continual improvement and advancement of Haematology.
- Apply the principles of Evidence Based Laboratory Practice (EBLP) to inform health care decisions.

These standards are elaborated as content areas and specific training outcomes in Section 2 of this handbook. In the Clinical Laboratory standards there are specific content areas and training outcomes for Part I and II. Competence in outcomes achieved by Part I of training should be maintained throughout. It is expected that trainees should achieve the outcomes in the Research Standards and Innovation, Development and Leadership Standards gradually throughout their training.

Trainees, with the assistance of their supervisor, should ensure that they engage in appropriate learning activities to achieve each of the outcomes, and therefore the standard. The indicators are statements which guide the assessment process, and describe how the trainee will demonstrate they have met the standard. Specific assessment requirements are detailed in Section 3 of this handbook.

The total time to complete the training program is normally a minimum of 5 years, except when time credits have been granted by the Chief Examiner on the advice of the Principal Examiner for previous experience through a Training Determination. Part I assessment criteria can normally be met and assessed during the third year of training, Part II requirements following another 2 years training. College examinations are held regularly in May and August each year.

Administrative requirements

This handbook should be read in conjunction with the ***RCPA Trainee Handbook Administrative Requirements*** document on the College website.

Entry requirements

Trainees should be graduates of a university in Australia or New Zealand with a degree at Australian Qualifications Framework level 7 (minimum) with subjects relevant to the field of pathology. If such a degree is awarded by an overseas tertiary education institution the qualifications should be approved by the College. To enter the program, trainees are ordinarily required to have five (5) years post graduate experience working as scientists in a Pathology related field.

Training requirements

Training must take place in an RCPA accredited laboratory and is limited to the time period for which that laboratory is accredited in each discipline. Details of RCPA accredited laboratories are available through the College website.

Please note that ordinarily, a maximum of 4 years is to be spent in any one laboratory over the course of the 5-year training program. Individuals should contact the College Registrar if a deviation from this requirement is sought.

Trainees are responsible to ensure that all forms are submitted by the due dates indicated in the handbook and the College website.

Supervision

References (including hyperlinks)

- RCPA policy on supervision
- Supervisor resources

All training must be supervised. More than one supervisor can be nominated if Trainees divide the year between two or more unrelated laboratories. The College recommends that any one supervisor be responsible for no more than two Trainees.

Who can be a supervisor?

The supervisor will normally be a Fellow of the RCPA; however non–Fellows may be approved by the Board of Education and Assessment if no Fellow is available. If the Trainee spends significant periods working in an area where the supervisor has no personal involvement, the supervisor must certify that suitable supervision is being provided. The supervisor must also ensure that adequate supervision is arranged in their absence.

In some circumstances shared supervision may be necessary, but there must be a nominated primary supervisor with overall responsibility. Trainees working towards higher academic degrees (e.g. PhD), who find that their research supervisor is not suitable to be the RCPA training supervisor, should nominate an RCPA Fellow as co-supervisor.

Day-to-day supervision should primarily be the responsibility of a Fellow of the Faculty of Science, however it is appropriate for senior pathology staff with relevant experience to sign off on some workplace based assessments.

The role of the supervisor

Supervisors should devise a prospective training (or research) program, on initial registration and annually. This should be devised in collaboration with the Trainee and submitted to the RCPA. Supervisors should also ensure that the Trainee has sufficient time and opportunities to carry out the required training activities.

Supervisors, and others to whom aspects of training have been delegated, are expected to monitor and provide regular feedback on the development of the Trainee's competence. In addition to the formal meetings with the Trainee which should occur every three months, they should meet regularly with the Trainee; observe their laboratory performance and interaction with pathologists, peers and clinicians; and review result reporting. This may be delegated to other trainers where appropriate, eg, when the Trainee is on secondment to another laboratory for a segment of training.

The formal duties of supervisors, such as requirements to report the Trainee's progress to the Board of Education and Assessment, are described in the RCPA Induction Manual for Supervisors and the RCPA policy on the Role of the Supervisor.

Supervisors and Trainees should contact the **College Education Advisor** for assistance with supervision and training issues.

Resources

The resources listed below are not compulsory nor do they necessarily cover all the haematology that a trainee should know. Information for examination may come from books and journals outside this list.

Text Books

Bain BJ, Clark DM, Wilkins B Bone Marrow Pathology. 4th edition.
Bain BJ Haemoglobinopathy Diagnosis. 2nd edition
Bain BJ Blood Cells A Practical Guide. 4th edition
Dacie and Lewis [Lewis, Bain and Bates] Practical Haematology. 10th edition
Hoffbrand V, Tuddenham E & Catovsky D Postgraduate Haematology. 5th edition
Hoffman's Hematology: Basic Principles & Practice. 5th edition.
Wintrobe's Clinical Haematology. 12th edition
Rossi's Textbook of Transfusion Medicine, 4th edition.
American Association of Blood Banks. Technical Manual, 17th edition
American Society of Hematology Annual Scientific Meeting Education Program book
"WHO Classification of Tumours of Haematopoietic and Lymphoid Tissues" eds. Swerdlow et al, 4th edition, 2008

Journals

American Association of Blood Banks – Transfusion Journal
Blood
British Journal of Haematology (BJH)
Haematologica
New England Journal of Medicine (NEJM)
Journal of Thrombosis and Haemostasis
Blood Reviews
Bailliere's Clinical Haematology
Haematology/Oncology Clinics of North America

Websites

ACHS – The Australian Council on Health Care Standards. Standard 1.5.5 for hospital transfusion practice. http://www.achs.org.au
American Society of Hematology: http://www.hematology.org/
ANZSBT – Australian & New Zealand Society of Blood Transfusion: - includes laboratory and clinical practice guidelines in transfusion: http://www.anzsbt.org.au/index.cfm
ARCBS – Australian Red Cross Blood Service: www.transfusion.com.au; http://www.redcross.org.au/
ASTH – Australasian Society of Thrombosis and Haemostasis: www.asth.org.au
BSCH - British Committee for Standards in Haematology: www.bcshguidelines.com
Blood and Tissues, Therapeutic Goods Administration http://www.tga.gov.au/blood-tissues
Blood, Tissue, Organs, Council of Europe http://ec.europa.eu/health/blood_tissues_organs/key_documents/index_en.htm
IANZ - International Accreditation New Zealand: www.ianz.govt.nz/
iTransfuse - http://resources.transfusion.com.au/cdm/search/searchterm/iTransfuse
NATA – National Association of Testing Authorities, Australia: http://www.nata.asn.au/
Australian Commission on Safety and Quality in Health Care http://www.safetyandquality.gov.au/
NPAAC - National Pathology Accreditation Advisory Council: http://www.health.gov.au/npaac

If you have ideas about additional resources, please inform RCPA: (email rcpa@rcpa.edu.au) so these can be added to future editions of this handbook.

SECTION 2 – CURRICULUM

Research Standards

Standard
Fellows of the Faculty of Science will: **Demonstrate highly developed skills in research, management of time and resources and communication of outcomes and data, whilst independently developing theoretical concepts, acquiring new knowledge and testing hypotheses in the field of Haematology.**

Content	Outcomes	Indicator
R 1 Research	**R 1 Demonstrated ability in carrying out effective research** 1.1 Comment on recent advances and relevant literature in their field of study 1.2 Employ analytical and critical thinking to develop, refine or critique theoretical concepts, and to recognise problems 1.3 Develop research proposals and protocols towards testing current hypotheses/ investigating or validating contemporary problems/ acquiring new knowledge in the discipline 1.4 Apply statistical and epidemiological concepts and interpret epidemiological/ laboratory data 1.5 Critically evaluate own findings and findings of others 1.6 Demonstrate an understanding of ethical/ professionalism issues relating to research including but not limited to consent, ethical treatment of humans and animals, confidentiality and privacy, attribution of credit, intellectual property, malpractice and misconduct Participate in effective and ethical peer review processes as researchers and peer reviewers	R 1 will be evidenced through: • At least 2 first author publications, published in the last ten years together with a written discussion that explains the background, interrelatedness and significance of the research. Candidates must detail their own contribution to the research. Individuals with a PhD, or a Masters (by Research) related to the area of expertise in Pathology conferred by a university recognised by the College, may be exempted from this component at the discretion of the Principal Examiner. AND • Answers questions in a viva voce examination to the standard approved by the principal examiner
R 2 Management	**R 2 Demonstrated ability in the management of research and research administration** 2.1 Prioritise outcomes, meet goals and work productively with key stakeholders using effective project management skills 2.2 Participate in processes for obtaining funding including applying for grants and other external funding 2.3 Use information systems and appropriate resources or technologies to record and communicate research findings 2.4 Determine the most cost effective methods to achieve a research goal 2.5 Demonstrate flexibility, adaptability, and innovation in management of research	All R 2 outcomes could be assessed through: • A report, to be submitted in the candidate's portfolio as detailed in Part II assessment policy AND • Answering questions in a viva voce examination to the standard approved by the principal examiner

Content	Outcomes	Indicator
R 3 Communication	**R 3 Demonstrated ability in research communication** 3.1 Clearly articulate ideas, construct cohesive arguments, and translate and convey technical concepts and information to a variety of stakeholders in a style appropriate to the context 3.2 Prepare reports and papers for peer review/ publication that comply with the conventions and guidelines for reporting biomedical research 3.3 Defend research methods and findings in peer review and/or viva voce examination 3.4 Achieve a significant number of articles in peer-reviewed publications 3.5 Support the development of research capacity of others in teaching, mentoring or demonstrating	• Document material presented at weekly laboratory meetings • Document the planning and progress of research towards a higher degree through Annual or 6 monthly report • Publications, presentations and poster abstracts • Document the contribution to research training programs or assisting other scientists/ registrars in conducting research AND • Answer questions in a viva voce examination to the standard approved by the principal examiner

Clinical Laboratory Standards – Part I

Standard
Fellows of the Faculty of Science will: • **Demonstrate competence in applying the techniques, technology and reporting associated with an Haematology laboratory with a broad case-mix of patients**

Content	Outcomes	Indicator
HC1 Laboratory techniques Apply and evaluate the techniques and technology routinely used in the laboratory.	Explain the principles, performance and limitations of the techniques/equipment listed, including technical and clinical aspects to support the interpretation of results **HC 1.1** • Light microscopy • Phase contrast microscopy • Electron microscopy • Photoelectric colorimeter • Automated cell counters • Automated staining machines • Automated blood bank instruments • General Crossmatching techniques • Electrophoresis • pH meters • Spectrophotometer • Calibration • Flow cytometry technologies • Immunoassays • High performance liquid chromatography • Instruments for molecular techniques • Refrigeration and cold chain techniques • Buffers **HC 1.2 – Staining and specimen preparation** • Describe routine staining, including Romanowsky, supra-vital, cytochemical and Kleihauer • Suggest strategies to investigate poor staining • Discuss pH of malaria stain and ICSH stain	All **Part I** outcomes will be evidenced by answering written examination and viva voce questions to the satisfaction of the principal examiner, in addition to workplace based assessment scaffolds as part of a portfolio of work
HC2 Haemopoiesis Describe Haemopoiesis.	**H 2.1 – Describe the biology of haemopoiesis:** • The development, morphology and function of normal haemopoietic cells found in bone marrow and blood • The role of haemopoietic growth factors of clinical relevance • The function and distribution of haematinics • Aspects of cellular biology which have implications for understanding haemopoiesis including: karyotyping and cytogenetic nomenclature, the cell cycle, apoptosis/cell death, cell differentiation, regulation of receptors and the functions of subcellular bodies	

Content	Outcomes	Indicator
HC2 Haemopoiesis (Cont.) Describe the management of Cellular Therapy products	**H 2.2 – Describe the techniques used in the analysis and storage of cellular products for stem cell therapy** • The counting and evaluation of stem cell products including CD 34 analysis • The use of stem cell growth factors in the ex vivo expression of stem cell products • The role of ex vivo purging and purification • TGA and other regulatory requirements in cellular therapy manipulation	All **Part I** outcomes will be evidenced by answering written examination and viva voce questions to the satisfaction of the principal examiner, in addition to workplace based assessment scaffolds as part of a portfolio of work
HC3 Clinical conditions Apply pathophysiological aspects of specific clinical situations to support the interpretation of results. Outline the WHO classification system and identify the techniques used in the diagnosis of haematological malignancies	**HC 3.1 – Explain the underlying pathophysiology to investigate clinical abnormalities in the following conditions** • Analyse Haematological non-malignant conditions • Anaemias – macrocytic, microcytic, haemolytic, hypoplastic, blood loss - Investigation of microcytic anaemia - Investigation of DAGT negative haemolytic anaemia - Investigation of anaemia of chronic disease • Thalassaemia and haemoglobinopathies • Erythrocytosis – reactive and malignant • Red cell breakdown • Cytophilias, cytopenias and other benign disorders of white blood cells • Thrombocytosis and thrombocytopenia.- cellular aspects • Haematology of conditions including pregnancy, the neonate, childhood, the elderly • Effects of infection on leukocytes and peripheral blood smear morphology **HC 3.2 – Identify appropriate technologies and techniques to distinguish between** • Acute leukaemia • Myeloproliferative disorders • Myelodysplastic syndromes • Lymphoproliferative disorders • Monoclonal gammopathies • Amyloidosis according to WHO classification	
HC4 Transfusion Outline the immune response mechanisms and impact of transfusion Describe the established blood group systems	**HC 4.1 – Outline** • The functions of T cells, interactions between T cells, antigen presenting cells and B cells and the role of associated chemokines • Self recognition, tolerance and mechanisms of autoimmunity. • Factors influencing interaction between antigens, antibodies and complement • The immunomodulatory effects of transfusion **HC 4.2 – Describe the** • Structure, function and key biochemical features of the major blood group antigens • Molecular basis for DNA-based methods for detecting common phenotypes of the ABO, Rh, Ii, Kell, Fy, Jk, MNS systems	

Content	Outcomes	Indicator
Describe and apply the technical and quality requirements for the performance of the full range of transfusion and blood group serological testing. Describe the parameters that characterise blood group antibodies and their clinical significance	**HC 4.3 – Describe and demonstrate application of** • The principles, current methods and quality management procedures for blood grouping, phenotyping, antibody screening and crossmatching • The principles and methods used in complex antibody identification and blood grouping/typing problems • Automated systems for pre-transfusion testing **HC 4.4 – Describe** • The serological properties of the antibodies directed at the major blood group antigens • Cellular assays used to assess the clinical significance of blood group antibodies	All **Part I** outcomes will be evidenced by answering written examination and viva voce questions to the satisfaction of the principal examiner, in addition to workplace based assessment scaffolds as part of a portfolio of work
Describe and perform the diagnostic and investigative procedures and techniques surrounding immuno-haematological and transfusion related disorders, including Transfusion reactions, Haemolytic Disease of the Newborn, Autoimmune Haemolytic Anaemia, Drug induced haemolytic anaemia.	**HC 4.5 – Describe** • Serological, haematological and biochemical investigations of suspected haemolytic transfusion reactions • The causes of febrile non haemolytic transfusion reactions, relevant investigations and strategies to minimise recurrence • Current concepts of the clinical and immunological basis for the occurrence of Transfusion Related Acute Lung Injury (TRALI) and its investigation • The transfusion implications of IgA deficiency and current methods for quantifying IgA • The immunological basis for haemolytic disease of the newborn (HDN) and factors influencing its severity • The antibodies most commonly responsible for HDN and the cellular and serological assays used to assess their clinical significance • Techniques for antenatal determination of fetal blood group antigens • Antenatal testing protocols for detecting clinically significant antibodies • Current protocols for the administration of anti-D gammaglobulin and methods for determining fetal cell numbers in maternal blood • The pathogenesis of and known triggers for autoimmune haemolytic anaemia (AHA) • The serological presentations of AHA, investigations, and procedures for providing blood for transfusion • Drugs most commonly implicated in drug induced haemolytic anaemia, their mechanisms of haemolysis and techniques for detection	
Describe the transfusion requirements for Bone marrow / stem cell transplantation patients.	**4.6 – Describe the relevance of** • Serological anomalies resulting from transplantation • Selection of appropriate blood group products for transplant patients whose donor has a different ABO group • Selection of appropriate transfusion products for patients undergoing peripheral blood stem cell transplants including autologous and allogeneic • Selection process for donors of peripheral blood stem cells for transplantation services	

Content	Outcomes	Indicator
HC 5 Routine Coagulation Explain and apply the theoretical and practical principles of coagulation testing and other related diagnostic tests	**HC 5.1 – Describe principles of coagulation testing, including the analysers within detection systems for** • PT, INR, APTT, TT, TT correction methods • Fibrinogen, Fibrin/fibrinogen degradation products • Mixing studies • DIC screening – D Dimer • Factor assays **HC 5.2 – Identify appropriate reagents considering technical and clinical factors including sensitivity** • Thromboplastins including calculation of ISI • Partial thromboplastins including determination of sensitivity to heparin, lupus • anticoagulant and coagulation factor levels • Buffers, activators, inhibitors of fibrinolysis **HC 5.3 – Describe Automated coagulation testing, including** • the major instruments in use • recent developments and innovations • technical and clinical roles and value of specific technologies **HC 5.4 – Explain other techniques used in or in association with the routine coagulation laboratory** • Centrifugation and it's requirements – converting g to rpm • Refrigeration and freezers – their role in management of reagents and specimens • Near patient testing devices • Thromboelastograph techniques **HC 5.5 – Describe pre-analytical variables and their effect on laboratory results. Specifically, specimen collection including** • anticoagulants in use • specimen handling, stability, storage and transport • special requirements **HC 5.6 – Describe normal haemostasis and how testing can be applied to detecting abnormalities** • Clotting factors and their inhibitors • Fibrinolytic proteins and their inhibitors • Vascular endothelium interactions • Platelet function **HC 5.7 – Outline Miscellaneous clinical situations, including** • Acquired coagulation disorders including those seen in DIC, Liver disease, trauma, post surgery and infection • Hereditary coagulation factor deficiencies • Acquired and hereditary thrombophilias • Platelet dysfunction (basic knowledge required) • Haemostasis seen in pregnancy, the neonate, childhood • Haemostasis in liver disease and liver transplant	All **Part I** outcomes will be evidenced by answering written examination and viva voce questions to the satisfaction of the principal examiner, in addition to workplace based assessment scaffolds as part of a portfolio of work

Content	Outcomes	Indicator
	HC 5.8 – Outline anticoagulant therapy • Identify traditional and emerging anticoagulants • Describe the tests used, factors affecting results and the interpretation of results including therapeutic ranges for monitoring anticoagulated patients **HC 5.9 – Outline more specialised testing techniques, including** • Lupus anticoagulant testing • Platelet aggregation testing and screening techniques such as PFA • Thrombosis • Molecular testing – eg FVL; prothrombin gene mutation • Laboratory testing for new anticoagulants	
HC6 Advanced laboratory techniques: Molecular Haematology and Flow cytometry Apply and evaluate the techniques and technology used in the comprehensive investigation of cellular disorders	**HC 6.1 – Explain the principles, performance and limitations of these techniques associated with the detection, diagnosis, classification and monitoring of cellular disorders** • Flow cytometry – immunophenotyping leukaemia and lymphoma, PNH, detection of fetal maternal haemorrhage • Cytogenetics including FISH • Molecular studies – investigations that would now be considered routine e.g. BCR-ABL1, JAK2 mutation status, HFE testing, Haemophilia and other bleeding disorder mutation screens including prothrombin gene mutation, Factor V Leiden, MTHFR • Immunoglobulin and T cell receptor gene rearrangements in exclusion or diagnosis of lymphoproliferative disorders • Immunoassay – B12, Folate • Miscellaneous techniques – including but not restricted to those used for investigation of anaemia and haemolysis	All **Part I** outcomes will be evidenced by answering written examination and viva voce questions to the satisfaction of the principal examiner, in addition to workplace based assessment scaffolds as part of a portfolio of work

Clinical Laboratory Standards – Part II

Standard
Fellows of the Faculty of Science will: **Apply the theoretical and technical expertise in laboratory techniques required to lead the activities of a Haematology laboratory, including one specialised area of Haematology**

Content	Outcomes	Indicator
HC 7 Advanced laboratory techniques in General Haematology	**HC 7.1** – Detail your experience with and contribution to the utilisation of an advanced laboratory technique in general haematology within your department **HC 7.2** – Describe the development of an advanced technique used in your field of expertise and its application to the analysis of a pathological disorder. Evaluate the science or technology underpinning the technique and detail the contributions of key authors who contributed to the development of this technique	All HC7-HC11 outcomes will be evidenced by answering questions in a viva voce examination to the satisfaction of the principal examiner, in addition to Faculty of Science Reports.
OR **HC 8 Advanced laboratory techniques in Coagulation**	**HC 8.1** – Detail your experience with and contribution to the utilisation of an advanced laboratory technique in Coagulation within your department **HC 8.2** – Describe the development of an advanced technique used in your field of expertise and its application to the analysis of a pathological disorder. Evaluate the science or technology underpinning the technique and detail the contributions of key authors who contributed to the development of this technique	
OR **HC 9 Advanced laboratory techniques in Molecular Haematology**	**HC 9.1** – Detail your experience with and contribution to the utilisation of an advanced laboratory technique in Molecular Haematology within your department **HC 9.2** – Describe the development of an advanced technique used in your field of expertise and its application to the analysis of a pathological disorder. Evaluate the science or technology underpinning the technique and detail the contributions of key authors who contributed to the development of this technique	
OR **HC 10 Advanced laboratory techniques in transfusion medicine and/or transplantation services – cellular therapies**	**HC 10.1** – Detail your experience with and contribution to the utilisation of an advanced laboratory technique in Transfusion Medicine within your department **HC 10.2** – Describe the development of an advanced technique used in your field of expertise and its application to the analysis of a pathological disorder. Evaluate the science or technology underpinning the technique and detail the contributions of key authors who contributed to the development of this technique	

Content	Outcomes	Indicator
OR **HC 11 Advanced laboratory techniques in flow cytometry and malignant Haematology**	**HC 11.1** – Detail your experience with and contribution to the utilisation of an advanced laboratory technique in Transfusion Medicine within your department **HC 11.2** – Describe the development of an advanced technique used in your field of expertise and its application to the analysis of a pathological disorder. Evaluate the science or technology underpinning the technique and detail the contributions of key authors who contributed to the development of this technique	
PLUS **HC 12 Instrumentation**	**HC 12.1** – Describe the principles of operation of an advanced system or apparatus in your field of expertise **HC 12.2** – Explain the significance of this instrument to a specialised area of Haematology and its relevance to clinical decision making	HC12 will be evidenced through answering questions in a viva voce examination to the satisfaction of the principal examiner appointed by the college, describing scientific principles supported by appropriate formulae and statistics, limitations, error detection and troubleshooting, along with how the apparatus or system has advanced Haematology
AND **HC 13 Advanced pathology science**	**HC 13.1** – Describe the laboratory diagnosis of a relevant haematological condition in which there has been recent advances in diagnostics of this condition	HC13 will be evidenced through Faculty of Science Reports, plus answering questions in a viva voce examination to the satisfaction of the principal examiner appointed by the college
AND **HC 14 Clinical** Within the context of one of HC1-HC5	**HC 14.1** – Describe in detail the clinical manifestations of a disease and how these relate to the pathogenesis of this disease **HC 14.2** – Explain how an understanding of disease pathogenesis can be translated to clinical treatment. Give an example of a haematological disease and relevant translational research which has resulted in a change in diagnostic strategy and therapy	HC14 will be evidenced through Faculty of Science Reports, plus answering questions in a viva voce examination to the satisfaction of the principal examiner appointed by the college

Innovation, Development and Leadership Standards

Standard
Fellows of the Faculty of Science will: • **Apply, implement and evaluate strategies that guarantee quality assurance, compliance, safety and efficient use of resources fundamental to the operation of an Haematology laboratory** • **Demonstrate a commitment to the continual improvement and advancement of Haematology** • **Apply the principles of Evidence Based Laboratory Practice (EBLP) to inform health care decisions**

Content	Outcomes	Indicator
I 1 – Evaluate laboratory policies and practices to meet quality management, compliance and safety standards	1.1 Maintain and evaluate a quality assurance system under ISO 15189 1.2 Evaluate current practices to ensure compliance with NPAAC standards as appropriate or international equivalent 1.3 Synthesise quality assurance, quality control and safety, and Total Quality Management policies to meet NATA accreditation or international equivalent 1.4 Act with accountability to facilitate workflow, teams, decision making, and communication in management and planning of services and/or departments 1.5 Evaluate and improve workplace safety through proactive management practices, employing laboratory information systems and reporting mechanisms where appropriate 1.6 Develop or review the processes of validation and verification of methodology used in the laboratory	Answer written examination and viva voce questions that demonstrate competence in these aspects of management required to lead a laboratory PLUS Satisfactory completion of the RCPA Laboratory Management modules (online)
I 2 – Demonstrate leadership and innovation in developing the practice of Haematology	2.1 Maintain an evidence base to support advice provided to clinicians 2.2 Design, adapt and implement analytically valid and traceable routine tests, underpinned by reference materials and documented methods 2.3 Evaluate new methods as fit for use 2.4 Assess business opportunities for validity where appropriate 2.5 Provide strategic direction for laboratory including management of change 2.6 Support and promote the education of colleagues, co-workers, students, and the public through a variety of strategies including formal/ informal teaching, educational material development, and mentoring 2.7 Reflect on your engagement in Continuing Professional Development (CPD), and personal benefits 2.8 Define and model ethical practices in handling/ reporting patient information, interacting with others and seeking opinion, conflict of interest, financial probity, and managing errors 2.9 Identify your role in professional societies/ colleges and contribute to its activities	Answer viva voce questions and document activities in the portfolio that demonstrate leadership and innovation in these aspects of laboratory practice, supported by specific personal contributions review or develop educational materials for non-scientists e.g. Lab Tests Online Australasia Complete the RCPA Ethics and Confidentiality modules (online)

Content	Outcomes	Indicator
I 3 – Demonstrate the ability to make informed decisions by accessing and integrating the most current, relevant, valid and reliable evidence available	3.1 Identify knowledge gaps during practice and construct focussed, answerable questions to address these gaps 3.2 Use an appropriate search strategy to answer identified questions through existing evidence 3.3 Critically evaluate the relevance, currency, authority and validity of all retrieved evidence including scientific information and innovations 3.4 Apply the appraised evidence appropriately to practice by informing decisions in the given context 3.5 Use reflective and consultative strategies to evaluate the EBLP process	Faculty of Science Reports submitted by the candidate should demonstrate principles of EBLP AND Answer written examination and viva voce examination questions

SECTION 3 – ASSESSMENT POLICY

This section explains the specific requirements and assessment policy for the Faculty of Science Chemical Pathology program. It should be read in conjunction with the ***RCPA Trainee handbook Administrative requirements***, found on the College website.

Part I – Requirements

Assessment in **Part I** is by:

1. Formal examinations
2. Portfolio of evidence indicating completion of a sufficient number and type of work-based activities
3. Satisfactory progress (Supervisor reports)

See Assessment Matrix in **Appendix 4**

The aim of the **Part I** assessments are to ensure that Trainees have spent time in the laboratory and acquired requisite knowledge and skills and participated in a community of practice, such that they can appropriately incorporate the laboratory/scientific and clinical elements of Haematology in their daily work.

1. Formal examinations

There will be a written examination and a practically oriented examination, held in designated examination centres on dates specified by the College.

The written examination will require short answer and extended responses to questions from the Clinical Laboratory and Innovation, Development and Leadership components of the curriculum. The research component is assessed separately at Part II level.

The practically oriented examination, organised into a series of 10 to 20 minute stations, will normally pose similar questions for all candidates. Responses will be marked against model answers.

The focus of the practically oriented examination will be on demonstrating practical aspects of Laboratory Standards (Part I) and Laboratory Innovation, Development and Leadership Standards such as the interpretation of test results, measurements and calculations, problem solving and reporting, quality control and laboratory management although the discussion will often be much broader. Where relevant all candidates will be given reading material to evaluate before entering the exam stations.

2. Portfolio requirements

In addition to various formal examinations, assessments carried out in the workplace (i.e. Directly Observed Practical Skills, short case reports, Case-based Discussions) and evidence of other learning activities should be recorded in a Logbook and portfolio. Together, these provide evidence that the Trainee is developing technical skills and professional values, attitudes and behaviours that are not readily assessed by formal examinations. Trainees should start accumulating evidence for the portfolio as early as possible in training. It is the Trainee's responsibility to keep the logbook up to date and meet the additional portfolio requirements.

Appendix 1 details the Haematology Portfolio Requirements for both Part I and Part II.

Logbook

A sample page of what will become a logbook for recording workplace based activities can be found in **Appendix 2**. **Every formal learning** activity should be recorded here. Only those outlined below should be documented in more detail. Opportunities in the development and assessment of communication skills should also be recorded.

Short case reports

Trainees must complete a total of three or more short case reports (~1000 words). The trainee should discuss with their supervisor before selecting a case/topic for the report. The focus of the case report could be on a specific technical aspect covering any of the content areas specified in the Part I Laboratory Standards, including laboratory issues of diagnosis and testing. The discussion should include a focussed review of the relevant literature.

The Trainee should select a suitable assessor, who should be an RCPA Fellow but does not need to be the listed supervisor. The assessor could note this as a quality activity in their annual Continuing Professional Development Program (CPDP) submission. Short case reports will be evidenced by the assessor completing the assessment form, included as **Appendix 3.** Please include the completed assessment form and the report in the portfolio. Trainees are encouraged to present their completed case reports at scientific meetings of relevant colleges or societies.

Case-based discussions (CbD)

Trainees must complete a total of five or more Case-based discussions (CbD). The Trainee and supervisor should be guided by the outcomes in HC 1-6, HC 3 in particular. CbDs will be evidenced by the supervisor completing the relevant CbD form, included in **Appendix 2.**

Doing CbD assessments is excellent preparation for the **oral examinations** for trainees. CbD assessments provide feedback about the trainee's ability to interpret and relate laboratory results to opinions and conclusions, including about case circumstances; to plan appropriate investigations, and to provide advice on decisions related to investigations, including decisions with ethical and legal dimensions. The purpose of the CbD assessment is also to provide feedback to Trainees about their progress by highlighting strengths and areas for improvement, thereby encouraging their professional development.

The Trainee should initiate each CbD assessment. The Trainee should select a suitable assessor. The assessor need not always be the listed supervisor. The trainee can discuss and request the supervisor to delegate another assessor, preferably but not necessarily an RCPA Fellow. The assessor could note this as a quality activity in their annual Continuing Professional Development Program (CPDP) submission.

For the assesssments, the Trainee should select and prepare two (2) recent cases with which s/he has been involved. The assessor should select one (1) of these for the Trainee to present and discuss. The Trainee should request a mutually convenient time to meet for about 30 minutes. The presentation/discussion should take about 15-20 minutes. A further 5-10 minutes should be allowed for the assessor to give immediate feedback and complete the CbD form. In addition to the formal CbD assessment, supervisors are encouraged to have an informal discussion of the second case prepared by the Trainee. Each CbD case discussion should cover one or more of the different aspects of practice indicated on the CbD form.

Directly Observed Practical Skills (DOPS)

In Haematology, trainees are to spend the ***minimum specified time*** on each laboratory rotation, covering ***all*** curriculum areas. Trainees will be required to demonstrate competence in their day-to-day work by performing Directly Observed Practical Skills. Competence in each rotation is usually certified through the issuance of a DOPS competence certificate, indicating the trainee is competent in all techniques in that area. The Trainee and supervisor should be guided by the outcomes in HC 1,2,4,5,6 for the scope and level of competence required. Once proficiency is achieved (to be assessed by at least one instance of observing the trainee in the different techniques at each rotation and giving feedback) the supervisor should complete the relevant FSc DOPS Competency form included in **Appendix 2**, including details such as the workload in that area and the nature of the instruments used.

The signed DOPS competency forms should be included in the portfolio and noted in the Portfolio Summary spreadsheet.

The table below shows the minimum timeframe to be spent at each laboratory rotation during **Part I** training in in Haematology.

Curriculum area	Minimum training time (months)
HC1 Laboratory techniques	6
HC2 Haemopoiesis	6
HC4 Transfusion	6
HC5 Routine coagulation	6
HC6 Molecular Haematology and Flow Cytometry	6 (minimum 1 month in each)

Other Evidence

Trainees should ensure that they are engaged in a variety of learning activities related to teaching, scholarship and leadership throughout training. These may include presentations (oral and posters), writing abstracts, staff presentations, conferences, teaching, and developing educational material. A suggestion for educational material development is the Lab Tests Online Australasia editing process, please email your details and discipline to ltoau@aacb.asn.au to participate.

These activities develop written and oral communication skills. Whilst each activity should be recorded in the logbook, documented evidence of a minimum of 5 from a variety of activity types per year should be made available upon request over the training period.

3. Supervisor Reports

The supervisor must review and sign off the *completed portfolio forms* and the *logbook* on the **Supervisor reports**. The supervisor must also rate the trainee according to their professional judgement in a range of competencies including in laboratory skills, research, innovation and leadership, and professional attitudes and behaviours. The behaviours to be rated and the rating scale with anchors are provided in the supervisor report.

Trainees must submit a Supervisor Report for each year of training (and period of rotation if applicable) to the RCPA Registrar. Trainees who are sitting the **Part I** oral examination must submit an additional pre-examination Supervisor Report. A cumulatively updated **Portfolio Summary Sheet**, documenting the portfolio of workplace based activities and assessment, must be appended to the pre-examination Supervisor Report and sent to the RCPA Registrar prior to the **Part I** oral examinations at a time determined by the RCPA. Trainees are responsible for submitting the pre-examination Supervisor Report by the due date. Failure to do so may jeopardise the accreditation of training time or finalisation of examination results. The Supervisor Report form can be found at:
http://www.rcpa.edu.au/Trainees/Training-with-the-RCPA/Supervisor-Reports

The portfolio summary sheet will be reviewed by the Registrar, Board of Education and Assessment or delegate and the Principal Examiner. The signatories and Trainee may be contacted to confirm evidence of satisfactory completion.

Note: The actual portfolio should not be sent unless requested for audit.

Summary of assessment requirements for Part I

Item	*Completion*	*Assessed by*	*Comments*
Written examination: short answer and/or more extended responses	During the third year of training. After submission of pre-exam supervisor report and portfolio summary sheet	Marked by two (2) examiners with appropriate experience	Questions set by a panel of examiners
Practically oriented examination: Multi-stationed set of assessment tasks, with practically-oriented questions		Marked by two (2) examiners with appropriate experience	Questions set by a panel of examiners
Portfolio items (see Appendix I) to be signed off by supervisor or delegate e.g. DOPS, CbDs, Short Case Reports	To be completed before Part I examinations	Portfolio summary spreadsheet is checked for completeness by RCPA. If incomplete, the candidate may be required to undertake further activities.	Portfolio items are to be reviewed by the supervisor when preparing the supervisor report. (The portfolio should not be sent to the College unless requested for audit)
Supervisors' Reports with portfolio summary spreadsheet.	Annual (end of rotation if applicable) and Part I pre-exam reports	Reviewed by College registrar or delegate	Referral to Principal Examiner if necessary.

Part II – Requirements

Assessment in **Part II** is by:

1. Formal examinations
2. Faculty of Science Reports on Clinical Laboratory Practice
3. Portfolio of evidence on workplace-based activities and assessments
4. Research work and reports
5. Satisfactory progress (Supervisor Reports)

See Assessment Matrix in **Appendix 4**.

The aim of the **Part II** assessments is to ensure that Trainees have spent time in the clinical laboratory, acquired requisite knowledge and skills and participated in a community of practice, such that they can appropriately lead the activities of a haematology laboratory in their area of expertise.

1. Formal examinations

There will be a structured 'oral' examination, consisting of approximately 3 stations of 20-30 minutes duration. The oral examination will normally pose similar questions for all Faculty of Science candidates (other than in the Laboratory Standards). There will be two examiners per station and responses will be marked against pre-determined criteria. The focus of this examination will be evaluation of specific aspects of Haematology Laboratory Standards (Part II), Research Standards, and Laboratory Innovation, Development and Leadership.

2. Faculty of Science reports on Clinical Laboratory Practice

The **Part II** assessment requires four (4) Reports of 3000-5000 words. These should be of a standard publishable in a journal such as *Pathology*.

In Haematology Advanced Laboratory Techniques area selected during Part II should be addressed by at least two (2) reports and the Advanced Pathology Science section of Part II (HC 13 and 14) should be addressed by at least one (1) report. Instrumentation (HC 12) by itself is not considered as a specialised area, but the Reports should demonstrate candidate's competence in Instrumentation where relevant.

The focus of the Report could range from a single patient case or case series to a large population depending on the discipline involved and the complexity of the situation under investigation. The Reports should demonstrate the candidate's approach to analysing the clinical/ pathological problem or issue in the case(s) or the population (including a relevant review of the literature) and follow up action/discussion based on principles of Evidence-based clinical Laboratory Practice.

It is also expected that some Reports will demonstrate the candidate's ability to be innovative, assure quality and consider management issues such as staff, instrument and reagent costs. Where applicable a Report should comment on issues such as, but not limited to, method selection, method validation, method development and trouble-shooting.

Based on the above approach, following are some suggestions appropriate as Report aims:
• The introduction or development of a new test and comparisons with current best practice

• Transference of an existing test to a new context, sample type or processing protocol and comparing it to current practice

• A study that examines the sensitivity and specificity of a test, including positive and negative predictive values in a particular population

• A detailed analysis of cumulative laboratory data (including case series)

• A study comparing specialised populations

Please note that the above list is not exhaustive. Trainees may discuss with their supervisor and determine any other aim, and inform the College administration well before planning the work involved. The Principal Examiner will confirm the appropriateness of the aim.

The Reports will be independently marked by two examiners in the relevant discipline and candidates will be provided with feedback. While these reports are considered to be Part II assessments, trainees should commence working on them as soon as possible. Candidates are encouraged to submit their Reports early in Part II, and at least 2 Reports should be submitted by the end of the fourth year of training. **It is recommended that *all* Clinical Laboratory Practice Reports be completed and submitted by the month following the Part II Oral Examination.**

Any publications arising from the Reports may be used to meet the requirements of the Research Standards component of the curriculum. Candidates are encouraged to publish their Reports subsequent to examination.

Please refer to **Appendix 3 –** Guidelines for Faculty of Science Reports (Part II)

3. Portfolio requirements

Other Evidence

Trainees should ensure that they are engaged in a variety of learning activities related to teaching, scholarship and leadership throughout training as described earlier. Whilst each instance of these activities should be recorded in the logbook, documented evidence of a minimum of 5 from a variety of activity types per year should be made available upon request over the training period.

4. Research work and reports

At least 2 first author publications, published in the last ten years together with a written discussion that explains the background, interrelatedness and significance of the research,

are required. Candidates must provide details of their own contribution to the research. When addressing this requirement, cross reference should be made to all components of item R1 of the Research Standards section of the curriculum (**see p. 6**), demonstrating how these standards have been met. Those individuals with a PhD, or a Masters (by Research) related to the area of expertise in Pathology conferred by a university recognised by the College, may be exempted from this requirement at the discretion of the Principal Examiner.

Research management would be assessed through a report to be submitted in the portfolio, which would detail the candidate's ability in managing a research project. The report should contain evidence and discussion (~1000 words) addressing the R2 and relevant R1 outcomes. Suggestions for evidence include research proposals and ethics submissions, grant applications made and/or periodic progress/ evaluation reports of successful grants, and end-of-year reports.

5. Supervisor Reports

Similar to Part I, Trainees who are sitting the **Part II** examination must submit a pre-examination Supervisor Report with the appended copy of the Portfolio Summary Sheet to the RCPA Registrar prior to the **Part II** examinations at a time determined by the RCPA. Failure to submit by the due date may jeopardise the accreditation of training time or finalisation of examination results. The Supervisor Report form can be found at: ***http://www.rcpa.edu.au/Trainees/Training-with-the-RCPA/Supervisor-Reports***

Summary of assessment requirements for Part II

Item	*Completion*	*Assessed by*	*Comments*
Oral examination: multi-station set of 20-30 min structured interviews	In the fifth year of training (or equivalent)	Two (2) examiners with appropriate experience per station	Questions set by a panel of examiners
Faculty of Science Reports: four (4) of a publishable standard to be certified as candidate's own work and signed by supervisor or delegate	By the month following the Part II oral examination	Assessed by a panel of examiners	Candidates may be required to revise & resubmit if not satisfactory.
Other portfolio items to be signed off by supervisor or delegate	To be completed before Part II oral examination	Portfolio summary spreadsheet is checked for completeness by RCPA. If incomplete, the candidate may be required to undertake further activities.	Portfolio items are to be reviewed by the supervisor when preparing the supervisor report. (The portfolio should not be sent to the College unless requested for audit)
Research work and reports	One month before Part II oral examination	Assessed by a panel of examiners	Referral to Principal Examiner if necessary.
Supervisors' Reports with portfolio summary spreadsheet.	Annual (end of rotation if applicable) and Part II pre-exam	Reviewed by College registrar or delegate	Referral to Principal Examiner if necessary.

APPENDICES

Appendix 1 - Portfolio Requirements for Haematology

The table below sets out guidelines to assist Faculty of Science trainees to compile the portfolio, the logbook and the portfolio summary spreadsheet.

Portfolio activities are carried out in the workplace and provide evidence that the trainee is developing technical skills and professional values, attitudes and behaviours that are not readily assessed by formal examinations. Trainees should start accumulating evidence for the portfolio as early as possible in training.

Appendix 2 contains the forms and logbook pages for recording these workplace activities. Please file the (hard copy) forms in a **portfolio folder** with separate sections, numbered as in the table below.

A soft copy **portfolio summary** (Excel spreadsheet) should also be compiled so that trainees can keep track of what they have completed. It is the trainee's responsibility to keep both hard and soft copy records **up-to-date**.

The supervisor should review and sign off completed portfolio forms and logbook on the annual, rotation and pre-exam supervisor report.

The portfolio summary spreadsheet should be appended to the pre-exam supervisor report and submitted to the RCPA prior to the oral examination at a time determined by the RCPA. The summary will be reviewed by the Registrar, Board of Education and Assessment or delegate and the Principal Examiner. The signatories and trainees may be contacted to confirm evidence of satisfactory completion.

Note: The actual portfolio should not be sent unless requested for audit.

Table: Portfolio Requirements for Haematology.

<table>
<tr><th></th><th>Item</th><th>Part I</th><th>Part II</th><th>Evidence</th></tr>
<tr><td>1</td><td>Supervisor report/s with brief reflection (maximum 1 page) on the supervisor's comments for each report.</td><td colspan="2">Annual reports (and end of rotation reports if applicable). An additional pre-exam report is required in the year of the Part I and Part II assessments</td><td>See Supervisor Report guidelines and forms
Appendix</td></tr>
<tr><td>2</td><td>DOPS competence in:
• Routine laboratory technique
• Haemopoiesis
• Transfusion
• Routine coagulation
• Molecular Haematology
• Flow Cytometry</td><td>At least six (6) with one (1) for each rotation to be completed satisfactorily before Part I examinations</td><td></td><td>All forms signed as satisfactory by supervisor or other appropriately qualified person as agreed/delegated by Supervisor.</td></tr>
<tr><td>3</td><td>CbDs</td><td rowspan="2">A total of five or more Case-based discussions and three or more short case reports before the</td><td rowspan="2"></td><td rowspan="2">All forms/ reports signed as satisfactory by supervisor or other appropriately qualified person as agreed/delegated by Supervisor.</td></tr>
<tr><td>4</td><td>Short Case Reports of 1000 words</td></tr>
</table>

	Item	Part I	Part II	Evidence
		Part I examinations		
5	**Clinical meetings** (laboratory, multidisciplinary) Plus a list of entities presented at each meeting	A combined total of at least five (5) learning activities with a minimum of one (1) in each type per year		Each meeting logged should be signed by the supervisor or another person as agreed/delegated by the Supervisor to verify the trainee's involvement in the meeting.
6	**Teaching sessions** Sessions conducted for students, colleagues, medical colleagues or other audiences. Educational material development			
7	**Scientific forums** Plus the abstracts presented at each meeting			
8	**RCPA Management module**	To be completed satisfactorily before Part I examinations		Signed as satisfactorily completed by supervisor
9	**RCPA Ethics module**			
10	**Research Management Report** of 1000 words		To be completed satisfactorily before Part II examinations	Signed as satisfactorily completed by supervisor, report to be included in portfolio.

Appendix 2 – Logbook and Forms

This appendix contains master copies of forms and logbook pages to be used to record activities for the portfolio. Please make as many copies as you need and file the completed forms in the portfolio folder. The forms include:

- Logbook page
- Short case report assessment form
- Case-based discussion assessment form
- Directly observed practical skills assessment form

RCPA The Royal College of Pathologists of Australasia	**Haematology Logbook**
Trainee name:	
Supervisor's name:	

Record the details of each learning activity in the table below. This will form part of your portfolio. This form should be copied as required throughout training.

Description of learning activity	Date	Comments	Initial

Supervisor's signature: **Date:**

RCPA The Royal College of Pathologists of Australasia	**Haematology** **Short Case Report Assessment Form**	
Trainee name	**Trainee ID (RCPA)**	**Stage of training** Y1 Y2 Y3 Y4 Y5 if > Y5 please specify
Assessor's name	**Assessor's position** ☐ Pathologist ☐ Scientist ☐ Other (pls specify)	

Please indicate (✓) if each of the following was deemed Satisfactory (S) or Unsatisfactory (U)

Aspect of Report	S	U
Clear layout of text with appropriate headings and paragraphs. Figures and tables are well planned and easy to understand		
Correct, concise English without spelling or grammatical errors		
Clear introduction, that covers the background of the topic & introduces the rest of the report		
The main body of the report is well organised, easy to read and answers the question that has been set.		
A full range of appropriate sources has been used to research the case/ topic, including textbooks, journals, websites, personal communications, surveys and/or experiments		
The conclusion accurately summarises the arguments that have been presented		
References are relevant and are cited accurately in the *Pathology* journal format		
No large amounts of irrelevant material & text		

Please comment on other relevant aspects, especially on aspects for improvement

Please indicate the overall standard of the report: ☐ SATISFACTORY ☐ UNSATISFACTORY

Signature of assessor	**Signature of Trainee**
Laboratory	
Date completed	

RCPA The Royal College of Pathologists of Australasia	**Haematology Case-based Discussion (CbD) Assessment Form**	
Trainee name	**Trainee ID (RCPA)**	**Stage of training** Y1 Y2 Y3 Y4 Y5 if > Y5 please specify

Assessor name and position:

Rotation (select one)

☐ Laboratory techniques	☐ Transfusion
☐ Haemopoiesis	☐ Routine coagulation
☐ Clinical conditions	☐ Molecular Haematology and flow cytometry

Focus of discussion (tick as many as apply)

☐ Principles of pathophysiology	☐ Significance to clinical management
☐ Diseases and their diagnostic features	☐ Instrumentation
☐ Research relevance	☐ Quality control
☐ Application of evidence based practice	☐ Advanced laboratory techniques

Complexity of case: ☐ Low ☐ Medium ☐ High

Brief description of case presented, discussed and assessed

Why was this case selected for discussion?

Does this case broaden the trainee's experience by being different from previous cases that have been discussed? ☐ Yes ☐ No ☐ N/A

Please comment on whether these aspects of the trainee's performance are as expected for the stage of training	**Yes**	**No**	**N/A**

Ability to present case clearly and concisely			
Good understanding of clinical issues relating to the case			
Good understanding of laboratory issues relating to the case			
Depth of understanding and awareness of current literature relevant to this case			
Ability of interpret results in a balanced and rational way			
Ability to provide and clearly communicate well reasoned professional advice			
Ability to clinically correlate the laboratory tests results in the setting of clinical presentation of the patient.			
Ability to suggest further relevant or more useful tests towards the management of the patient in relation to diagnosis and monitoring including prognostication.			
Ability to communicate findings to a non-medical person (e.g. patient, lawyer)			
Understanding of management and financial aspects of the case			
Overall laboratory and clinical judgment			

Please comment on the overall skills in effective communication

Please comment on other relevant aspects, especially on aspects for improvement

Final outcome (please tick)	**Date of CbD**	**Time taken for CbD**	**Time taken for feedback**
☐ As expected for the stage of training ☐ Below expected for the stage of training			

Signature of Assessor	**Signature of Trainee**
Laboratory	
Date completed	

The Royal College of Pathologists of Australasia	**Haematology** **Directly Observed Practical Skills (DOPS) Assessment Form**	
Trainee name	**Trainee ID (RCPA)**	**Stage of training** Y1 Y2 Y3 Y4 Y5 if > Y5 please specify
Assessor name	**Assessor's position** ☐ Pathologist ☐ Scientist ☐ Other (pls specify)	
Bench type & minimum training time (months): ☐ Laboratory techniques (6) ☐ Haemopoiesis (6) ☐ Transfusion (12) ☐ Routine coagulation (6) ☐ Molecular studies and ☐ Flow cytometry(6)		
Details of instruments used/ techniques practiced:		
Details of workload (Average number of tests per day or week)		
Has a satisfactory level of competence been achieved: ☐ Yes ☐ No		
Signature of assessor	**Signature of Trainee**	
Laboratory		
Date completed		

Appendix 3 – Guidelines for Faculty of Science Reports (Part II)

The Part II assessment requires four (4) Reports of 3000-5000 words. These should be of a standard publishable in a journal such as *Pathology*.

The focus of the Report could range from a single patient case or case series to a large population depending on the discipline involved and the complexity of the situation under investigation. The Reports should demonstrate the candidate's approach to analysing the clinical/ pathological problem or issue in the case(s) or the population (including a relevant review of the literature) and follow up action/discussion based on principles of Evidence-based clinical Laboratory Practice.

It is also expected that some Reports will demonstrate the candidate's ability to be innovative, assure quality and consider management issues such as staff, instrument and reagent costs. Where applicable a Report should comment on issues such as method selection, method validation, method development and trouble-shooting.

Based on the above approach, following are some suggestions appropriate as Report aims:

- The introduction or development of a new test and comparisons with current best practice
- Transference of an existing test to a new context, sample type or processing protocol and comparing it to current practice
- A study that examines the sensitivity and specificity of a test, including positive and negative predictive values in a particular population
- A detailed analysis of cumulative laboratory data (including case series)
- A study comparing specific populations

Please note that the above list is not exhaustive. Trainees may discuss with their supervisor and determine any other aim, and inform the College administration well before planning the work involved. The Principal Examiner will confirm the appropriateness of the aim.

in Haematology the Advanced Laboratory Techniques area selected during Part II should be addressed by at least two (2) reports and the Advanced Pathology Science section of Part II (HC 13 and 14) should be addressed by at least one (1) report. Instrumentation (HC 12) by itself is not considered as a specialised area, but the Reports should demonstrate candidate's competence in Instrumentation where relevant.

The Reports will be independently marked by two examiners in the relevant discipline and candidates will be provided with feedback. Candidates are encouraged to submit their Reports early in Part II, and at least two Reports should be submitted by the end of the fourth year of training.

Format

1. An electronic copy in pdf format should be submitted.
2. The first page should have the Trainee's RCPA number and the word count (excluding references). For examination and feedback purposes page numbers should be provided for the whole document and line numbers should be provided for all text.
3. The Trainee's name should NOT be displayed anywhere in the document.
4. Any information and contributions provided by others should be clearly identified. Do NOT give personal or institutional details of the individuals concerned. The Report submitted should be primarily the candidate's own work and any attribution of authorship should take place only at the time of possible publication.

5. The manuscript and reference format should comply with the requirements for the journal *Pathology*. http://edmgr.ovid.com/pat/accounts/ifauth.htm

Marking criteria

1. Demonstrates one or more of the Report aims.
2. Demonstrates appropriate principles of Evidence Based Laboratory Practice
3. Introduction discusses the literature and placement of the study in context.
4. Methodology is appropriate. Method described in sufficient detail to allow the study to be replicated; comments on method selection, method validation, method development and trouble-shooting.
5. Analysis: Quantitative or qualitative
6. Results
7. Discussion
   i. Interpretation of results or critical analysis of literature
   ii. Placement of results in context of the available literature
   iii. Limitations of the study
   iv. Lessons derived are adequately discussed; implications are related to the candidate's own situation and the broader context of the field
8. Format of the paper

   i. Complies with the requirements for the journal *Pathology* http://edmgr.ovid.com/pat/accounts/ifauth.htm
   ii. Reference List
   iii. Writing style syntax, spelling/ typographical errors
   iv. Graphs and tables.

*Reports will be graded as either **Satisfactory** or **Unsatisfactory**. Unsatisfactory reports will be returned to the candidate for revision, addressing of feedback, and resubmission to the RCPA for remarking*

Any publications arising from the Reports may be used to meet the requirements of the Research Standards component of the curriculum. Candidates are encouraged to publish their Reports subsequent to examination.

Declaration of originality
Each Report must be accompanied by a signed declaration of originality. Please use the form on the next page and do NOT incorporate the form into the Report, to preserve anonymity. The College's policy is that Trainees who submit work that is not their own will fail and the matter will be referred to the Board of Education and Assessment.

Submitting the report and originality declaration

Please *email* the report and the signed declaration of originality to the RCPA at **exams@rcpa.edu.au**. The declaration and the report will be kept on file at the College. E-copies will be sent to examiners. Please refer to RCPA website for due dates.

The Royal College of Pathologists of Australasia

Declaration for Faculty of Science reports

Trainee declaration:

I certify that this Report, titled:

……
……
……
……

is my own original work and that the work documented was completed as part of my personal supervised practice during my accredited training. It has not been previously submitted for assessment and has not been used by any other trainee in this laboratory. I have read and understand RCPA Policy 10/2002 - Plagiarism and Cheating in Examinations.

Trainee Name……...RCPA ID…….....

Trainee signature…… Date…….....

Supervisor declaration:

As the supervisor for ……, I certify that the work documented was completed personally by him/her during training. The Report is original and has not been used by any other trainee in this laboratory. I have reviewed this item and read the relevant RCPA requirements and believe it is suitable for submission to the RCPA examiners.

Supervisor name (print).....…….....…….....

Supervisor signature…….....date……

Appendix 4 - Faculty of Science Haematology Assessment Matrix

	Outcomes to be assessed *(From the Faculty of Science curriculum)*	Part I		Part II				Portfolio				
		Written exam (SAQ)	Structured oral exam	Structured oral exam	Research thesis	Published articles	Faculty of Science reports	CbDs	DOPS	Short Case reports	Other reports	Suggestions for portfolio evidence of activity
Clinical Laboratory – I	HC1 Laboratory techniques – routine	Y	Y					Y	Y			
	HC2 Haemopoiesis	Y	Y					Y	Y	P		1, 2
	HC3 Pathophysiology of clinical conditions and test interpretation	Y	Y					Y		Y		1, 2
	HC4 Transfusion	Y	Y					Y	Y	P		1, 2
	HC5 Routine Coagulation	Y	Y					Y	Y	P		1, 2
	HC6 Advanced laboratory techniques – Molecular Haematology & Flow cytometry	Y	Y					Y	Y	P		1, 2
Clinical Laboratory – II	HC 7-11 Advanced laboratory techniques: General Haematology, Coagulation, Molecular Haematology Transfusion medicine/ transplantation, Flow cytometry, malignant Haematology			Y			Y					1,2
	HC12 instrumentation			Y			P					
	HC13 Advanced pathology science			Y			Y					
	HC14 Haematological diseases and emerging diagnostic strategies			Y			Y					
Innovation & Leadership	I1 Quality and safety of laboratory practices	Y	P	Y			Y					4, 5, 6, 7
	I2 Leadership and innovation in developing the discipline	P		Y	P	P	Y				P	3, 8, 9
	I3 Evidence Based Laboratory Practice in decision making	Y	P	Y			Y					1, 3
Research	R1 Conducting Research			Y	Y	Y	P					
	R2 Research Management & administration			Y	P						Y	9
	R3 Research Communication			Y	P	Y						1, 2

Y = Yes P = Possibly * Portfolio categories: 1. Attendance/ presentations at laboratory/ multidisciplinary meetings; 2. Attendance/ presentations at scientific forums e.g. conferences; 3. Teaching sessions; 4. Attendance at management meetings; 5. Quality activities; 6. Incident reports; 7. RCPA Management module; 8. RCPA Ethics module; 9. Educational material development

