

**COMPETENCES REQUIRED FOR APPLICANTS
TO ATTAIN HPC REGISTRATION AS CLINICAL SCIENTISTS**

SPECIALTY :

Histocompatibility & Immunogenetics



This document comprises a discipline-specific version of the general competence document and provides additional guidance as to how to complete the general document, Appendix 1 of the Guidelines, that you must submit with your application.

Remember that the aim of the process is for the candidate to satisfy the assessor that he or she has the appropriate basic qualifications and length of experience for issue of the Certificate of Attainment, and that the training programme/period of supervised practice has enabled the candidate to achieve the basic level of competence required for registration as a clinical scientist.

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GENERIC COMPETENCES		SPECIFIC H&I COMPETENCES
	1-SCIENTIFIC	Be able to demonstrate the rigorous application of scientific methods in his/her experience to date
Sci1	<ul style="list-style-type: none"> understanding the science that underpins the specialty (modality) and the broader aspects of medicine and clinical practice 	<ul style="list-style-type: none"> Understanding the science that underpins H&I and the broader aspects of medicine and clinical practice An understanding of general immunology and its application to clinical transplantation/transfusion and HLA disease associations A basic knowledge of related disciplines to be able to integrate relevant diagnostic results into an interpretation Understanding the principles of the techniques and methods employed in H&I Must be familiar with the evidence for, and limitations of, common procedures used in the diagnosis and management of patients Must have sufficient 'clinical knowledge' to be able to communicate effectively with clinical and other professional colleagues A critical understanding of scientific method and the tools required to successfully evaluate, develop and/or modify both current and emerging technologies as routine diagnostic tools in H&I
Sci2	<ul style="list-style-type: none"> demonstrating a strong base of knowledge appropriate to the specialty and to the investigations and therapeutic options available 	
Sci3	<ul style="list-style-type: none"> experience of searching for knowledge, critical appraisal of information and integration into the knowledge base 	
Sci4	<ul style="list-style-type: none"> ability to apply knowledge to problems associated with the routine provision, and development, of the service 	
Sci5	<ul style="list-style-type: none"> ability to identify the clinical decision which the test/intervention will inform 	
Sci6	<ul style="list-style-type: none"> ability to make judgements on the effectiveness of procedures 	
Sci7	<ul style="list-style-type: none"> application of the knowledge base to the specialty (modality) and to the range of procedures/investigations available 	
<i>Achievement of:</i>	<ul style="list-style-type: none"> an understanding of the processes and methods employed in the practice of H&I an understanding of the application of investigative protocols and diagnostic H&I tests in relation to transplantation, transfusion and disease association an understanding of the integration and interpretation of H&I test results with other diagnostic parameters in the overall clinical assessment of the patient an understanding of scientific method and the tools required to successfully evaluate, develop and/or modify both current and emerging technologies as routine diagnostic tools in H&I developed research skills and expertise sufficient to support supervised and collaborative research initiatives in H&I 	
<i>Achieved through:</i>	<ul style="list-style-type: none"> a structured taught element (eg approved MSc course, lecture programme) and/or completion of the BSHI Diploma participation in local research meetings and evidence of supervised and collaborative research initiatives the presentation of outcomes of method evaluations, protocol development and clinical research initiatives of a standard suitable for publication self-endeavour (eg critical literature search and evaluation) under the tutelage of an appropriate accredited specialist in H&I 	
<i>Assessed by:</i>	<ul style="list-style-type: none"> the local BSHI training manager (usually a State Registered specialist) and a BSHI nominated national assessor 	

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GENERIC COMPETENCES		SPECIFIC H&I COMPETENCES
	2-CLINICAL	Be able to demonstrate the following relevant to the contribution of his/her specialty to patient care:
Clin1	<ul style="list-style-type: none"> to understand the requirements of accuracy and precision of a procedure in the context of diagnosis, prognosis, monitoring and treatment and to use that information appropriately 	<ul style="list-style-type: none"> Awareness of the evidence base (Medline etc) that underpins the use of the procedures employed by H&I Must be able to advise on appropriate choice(s) of investigation and sample requirements An ability to critically review H&I tests and determine the significance of results within the wider context of the clinical situation (transplantation, transfusion etc) An ability to develop a suitable investigation strategy
Clin2	<ul style="list-style-type: none"> ability to provide interpretation of data and a diagnostic (therapeutic) opinion, including any further action to be taken by the individual directly responsible for the care of the patient 	
Clin3	<ul style="list-style-type: none"> understanding of the wider clinical situation relevant to the patients presenting to his/her specialty 	
Clin4	<ul style="list-style-type: none"> ability to develop/devise an investigation strategy taking into account the complete clinical picture 	
Clin5	<ul style="list-style-type: none"> understanding of the clinical applications of his/her specialty and the consequences of decisions made upon his/her actions/advice 	
Clin6	<ul style="list-style-type: none"> awareness of the evidence base that underpins the use of the procedures employed by the service 	
<i>Achievement of:</i>	<ul style="list-style-type: none"> understanding of relevance of H&I tests and their clinical utility an understanding of variables that may influence interpretation of diagnostic procedures in H&I correct choice of H&I tests and procedures in a given clinical situation correct interpretation of H&I test results and their integration into the diagnostic picture 	
<i>Achieved through:</i>	<ul style="list-style-type: none"> a structured taught element (eg approved MSc course, lecture programme) and/or completion of the BSHI Diploma participation in local seminars, clinical meetings and ward rounds clinical audit clinical report evaluation and signing self-endeavour (eg literature searches) under the tutelage of an appropriate accredited specialist in H&I undertaking case studies 	
<i>Assessed by:</i>	<ul style="list-style-type: none"> the local BSHI training manager (usually a State Registered specialist) and a BSHI nominated national assessor 	

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	3-TECHNICAL	Be able to demonstrate the following, relevant to the modality or area of specialisation in which he/she wishes to be recognised
Tech1	<ul style="list-style-type: none"> understanding of the principles associated with a range of techniques employed in the modality including the appropriate use of Information Technology 	<ul style="list-style-type: none"> Understanding of the principles of H&I techniques (SSP, SSO, antibody tests, crossmatching) Understands when and how to utilise IT within H&I, including links to external systems e.g ODT An ability to perform, and experience of, common technical procedures as detailed in the BSHI Diploma log book Understanding of the principles of quality management and their practical application to monitoring tests used in H&I Ability to use knowledge of basic analytic principles to resolve problems associated with methods due to sample or reagent problems or limitations
Tech2	<ul style="list-style-type: none"> knowledge of the standards of practice expected from these techniques including positioning of patients for safe interventions 	
Tech3	<ul style="list-style-type: none"> experience of performing these techniques 	
Tech4	<ul style="list-style-type: none"> the ability to solve problems that might arise during the routine application of these techniques (troubleshooting) 	
Tech5	<ul style="list-style-type: none"> understanding of the principles of quality control and quality assurance 	
Tech6	<ul style="list-style-type: none"> experience of the use of quality control and quality assurance techniques including restorative action when performance deteriorates 	
<i>Achievement of:</i>	<ul style="list-style-type: none"> an ability to perform common technical procedures detailed in the BSHI Diploma log book in H&I experience of using local and external IT systems for dissemination and storing of H&I data a critical ability to review the results and determine the significance of quality control and quality assurance data for procedures in H&I a detailed understanding of analytical principles in H&I to facilitate method troubleshooting and the development of adequate procedures for preventive maintenance an understanding of the hazards associated with the practice of H&I and the appropriate controlling legislation (eg COSHH) and appropriate procedures for risk assessment 	
<i>Achieved through:</i>	<ul style="list-style-type: none"> a structured taught element (eg approved MSc course, lecture programme) and/or participation in appropriate BSHI Diploma practical instruction at bench level consolidated by experience of performing tests participation in locally organised health and safety course self-endeavour under the tutelage of an appropriate accredited specialist in histocompatibility and immunogenetics 	
<i>Assessed by:</i>	<ul style="list-style-type: none"> the local BSHI training manager (usually a State Registered specialist) and a BSHI nominated national assessor 	

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GENERIC COMPETENCES		SPECIFIC H&I COMPETENCES
	4-RESEARCH AND DEVELOPMENT	Be able to demonstrate a training in research which should include:
R&D1	<ul style="list-style-type: none"> ability to read and critically appraise the literature 	<ul style="list-style-type: none"> Recognise the value of research Ability to design and undertake a research project (e.g. BSHI Diploma) with a defined aim and a structured design Ability to undertake an assessment of the literature on a selected subject and provide a written critique of this Ability to perform required experimental work Produce and present results, including statistical analysis in a critical written report of the project e.g. for BSHI Diploma Ability to critically appraise data in the light of existing knowledge and to formulate further research questions Must have a knowledge of appropriate available statistical methods
R&D2	<ul style="list-style-type: none"> ability to develop the aims and objectives associated with a project 	
R&D3	<ul style="list-style-type: none"> ability to develop an experimental protocol to meet the aims and objectives in a way that provides reliable and robust data (i.e. free of bias) 	
R&D4	<ul style="list-style-type: none"> ability to perform the required experimental work ability to produce and present the results (including statistical analysis) 	
R&D5	<ul style="list-style-type: none"> recognise the value of research and has the ability to critically appraise results in the light of existing knowledge and the hypothesis developed and to formulate further research questions 	
R&D6	<ul style="list-style-type: none"> ability to present data and provide a critical appraisal to an audience of peers – both spoken and written 	
<i>Achievement of:</i>	<ul style="list-style-type: none"> research skills and expertise sufficient to support supervised and collaborative research initiatives in H&I ability to formulate an experimental protocol to meet the aims of a research question working independently on an R&D topic interpretation of experimental data and recognise focus for further research presentation of research data via written and oral summaries 	
<i>Achieved through:</i>	<ul style="list-style-type: none"> undertaking a research project as part of a higher degree or the BSHI Diploma participation in local research meetings and evidence of supervised and collaborative research initiatives the presentation of outcomes of method evaluations, protocol development and clinical research initiatives to local audiences and national/international meetings Submission of abstracts, publication of papers 	
<i>Assessed by:</i>	<ul style="list-style-type: none"> the local BSHI training manager (usually a State Registered specialist) and a BSHI nominated national assessor or MSc supervisor 	

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	5-COMMUNICATION	Be able to communicate in both the written and spoken media to colleagues, peers and patients:
Com1	<ul style="list-style-type: none"> ability to assess a situation and act accordingly when representing the specialty 	<ul style="list-style-type: none"> To understand the need to build and sustain professional relationships as both independent practitioner and member of a team Able to respond to enquiries regarding the service from clinical colleagues. Ability to communicate clearly and with confidence to clinical and other professional colleagues both within and outside the discipline of H&I using only accepted terminology To communicate in English at least equivalent to level 7 of the International English Language Testing System with no element below 6.5; understanding the need to address factors of age, physical and learning ability and use verbal and non-verbal communication while respecting culture and other forms of diversity To understand the need for providing information for service users to make informed decisions and ensure mutual respect and trust even in situations of personal incompatibility Be able to clearly present outcomes of patient testing, method evaluations, protocol development and clinical research initiatives in a variety of written and spoken media
Com2	<ul style="list-style-type: none"> ability to respond to enquiries regarding the service provided when dealing with clinical colleagues 	
Com3	<ul style="list-style-type: none"> ability to communicate with patients, carers and relatives, the public and other healthcare professionals as appropriate 	
Com4	<ul style="list-style-type: none"> ability to communicate the outcome of problem solving and research and development activities 	
Com5	<ul style="list-style-type: none"> evidence of presentation of scientific material at meetings and in the literature 	
<i>Achievement of:</i>	<ul style="list-style-type: none"> an ability to communicate clearly and with confidence to clinical and other professional colleagues both within and outside the discipline of H&I an ability to educate and train others both within and outside of H&I and to supervise the work of trainees and other staff as appropriate to the task an understanding of all aspects of information technology pertinent to the service provision and support of H&I 	
<i>Achieved through:</i>	<ul style="list-style-type: none"> a structured taught element (eg approved MSc course, lecture programme) and/or participation in the BSHI Diploma presentations in both oral and written form within and outside the department through the medium of seminars, tutorials, case presentations, posters and appropriate peer-reviewed publication participation in local seminars, clinical meetings, clinical audit and clinical report evaluation and signing self-endeavour (eg competence in word processing and other PC based programmes) under the tutelage of an appropriate accredited specialist in H&I 	
<i>Assessed by:</i>	<ul style="list-style-type: none"> the local BSHI training manager (usually a State Registered specialist) and a BSHI nominated national assessor 	

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	6-PROBLEM SOLVING	Be able to deal with the unexpected and thus be able:
PS1	<ul style="list-style-type: none"> to assess a situation 	<ul style="list-style-type: none"> Must be aware of the operation of the service and its detail in order to recognise aberrant output and act appropriately An awareness of the extent of available knowledge in H&I and an ability to employ appropriate information tools to search for, consolidate and critically examine information Demonstrate personal initiative. Must be capable of seeking and establishing relationships between independent pieces of information. Must be able to integrate information from different sources in relation to decision making and results interpretation Call upon the required knowledge and experience to deal with the problem and recognise what they are personally responsible for and must be able to justify their decisions. Ability to assess a situation and act accordingly when representing H&I.
PS2	<ul style="list-style-type: none"> determine the nature and severity of the problem 	
PS3	<ul style="list-style-type: none"> call upon the required knowledge and experience to deal with the problem 	
PS4	<ul style="list-style-type: none"> initiate resolution of the problem 	
PS5	<ul style="list-style-type: none"> demonstrate personal initiative 	
<i>Achievement of:</i>	<ul style="list-style-type: none"> an understanding of the significance of, and interrelationships between, individual items of laboratory data an awareness of the extent of available knowledge in H&I and an ability to employ appropriate information tools to search for, consolidate and critically examine information 	
<i>Achieved through:</i>	<ul style="list-style-type: none"> an approved postgraduate degree course and/or short courses and seminar programme self endeavour through literature surveys and tutorials with nominated and local supervisors participation in local clinical and laboratory seminars, clinical audit and case presentations experience of working within clinical laboratory 	
<i>Assessed by:</i>	<ul style="list-style-type: none"> the local BSHI training manager (usually a State Registered specialist) and a BSHI nominated national assessor 	

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	7-PROFESSIONAL ACCOUNTABILITY	Be able to demonstrate an understanding of management principles and techniques, including the following:
Prof1	<ul style="list-style-type: none"> Has read, understands and follows the Standards of Proficiency for Clinical Scientists and published by the Health Professions Council 	<ul style="list-style-type: none"> Has read, understands and follows the Standards of Performance of Clinical Scientists as published by the HPC – the need to practice safely and effectively, maintain high standards of personal conduct and maintain their own health Understanding of the legal and ethical boundaries of H&I, and the ethical aspects of scientific research Understanding of the principles of clinical governance including clinical audit, accreditation requirements relevant to H&I and the importance of equality and diversity. The importance of confidentiality, informed consent and data security, to act in the best interests of service users at all times and respect the rights dignity, values and autonomy of every service user Understanding of the need for, and ability to establish and maintain, a safe practice environment. Understanding of the requirements and obligations of Health and Safety including infection control, workplace safety, hazard control, protective equipment, specimen handling and waste, occupational health, dealing with waste and spillages Ability to recognise the limits of personal practice and when to seek advice Ability to manage personal workload and prioritize tasks appropriately Understanding of the need for career-long self-directed learning and the importance of continuing professional development. Must participate in an appropriate CPD scheme
Prof2	<ul style="list-style-type: none"> To be personally responsible for and must be able to justify their decisions 	
Prof3	<ul style="list-style-type: none"> Understanding of the legal and ethical requirements of the modality, and the ethical aspects of scientific research. 	
Prof4	<ul style="list-style-type: none"> Understands the need to practice safely and effectively within their abilities and can recognise the limits of personal practice and identify when to seek advice. 	
Prof5	<ul style="list-style-type: none"> Ability to manage personal workload and prioritize tasks appropriately. 	
Prof6	<ul style="list-style-type: none"> Can demonstrate competence in the principles of clinical governance including clinical audit, accreditation requirements relevant to the modality. This will include the importance of equality and diversity, confidentiality, informed consent and data security 	
Prof7	<ul style="list-style-type: none"> Ability to contribute effectively to work undertaken as part of a multi-disciplinary team 	
Prof8	<ul style="list-style-type: none"> Ability to supervise others as appropriate to area of practice. Understanding of the role of appraisal in staff management and development. 	

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Prof9	<ul style="list-style-type: none"> Understanding of the need and obligation for career-long self-directed learning and the importance of continuing professional development. 	<p>(after completion of BSHI Diploma)</p> <ul style="list-style-type: none"> Ability to contribute effectively to work undertaken as part of a multi-disciplinary team Ability to supervise others as appropriate to area of practice Understanding of the role of appraisal in staff management and development General understanding of the way H&I is structured and practised in other locations within the UK. Basic understanding of the importance of financial accountability, budgetary control and resource management
Prof10	<ul style="list-style-type: none"> Understanding of the need for, and ability to establish and maintain, a safe practice environment. Understanding of the requirements and obligations of Health and Safety including infection control 	
Prof11	<ul style="list-style-type: none"> Understanding of the structure and organization of the department and how it fits into the local clinical setting, General understanding of the way the modality is structured and practised in other locations within the UK. Basic understanding of the importance of financial accountability, budgetary control and resource management. 	
<i>Achievement of:</i>	<ul style="list-style-type: none"> an understanding of the management principles and tools used in H&I and the wider Pathology services the ability to act as a professional and work effectively as part of a team understanding of the importance and principles of accreditation, audit, confidentiality, data security and safe working practice 	
<i>Achieved through:</i>	<ul style="list-style-type: none"> a structured taught element (eg approved MSc course or approved lecture programme) and/or participation in BSHI Diploma undertaking a research project and considering ethics approval requirements local courses on general, personnel and financial management, health and safety, audit, etc participation in local seminars and meetings, attendance at clinical audit meetings and clinical governance committees. attendance at departmental management meetings involvement, under supervision, in management within the laboratory mentoring by an experienced practitioner 	
<i>Assessed by:</i>	<ul style="list-style-type: none"> the local BSHI training manager (usually a State Registered specialist) and a BSHI nominated national assessor 	