

POSITION DESCRIPTION

Position Title:	Radiation Biologist
Cluster / Business Unit / Division	Nuclear Science & Technology / Research
Section or Unit:	Human Health
Classification:	Band 6
Position Description Number:	PD-2200
Job Family:	Research
Work Contract Type:	Research and Sciences
STEMM/NON-STEMM:	STEMM

POSITION PURPOSE

The Radiation Biologist will contribute to the Human Health theme by building, enhancing, leading and supporting research in line with ANSTO's strategic goals. Taking advantage of ANSTO's portfolio of capabilities, the primary objective of the Radiation Biologist is to lead all biological aspects of the NCEPT and theranostics research and development program. This includes developing both in vitro and in vivo experimental evaluation protocols and methods. The role will lead and assist in the development of new agents for NCEPT to target disease models of interest. This includes identifying disease-specific pathways and targets of interest, developing ligand binding assays, functional assays and methods for determining cytotoxicity of novel neutron capture agents. These efforts span a range of infrastructure in various Platforms and are pivotal in developing or optimising new experimental systems and environments. The Radiation Biologist will provide specialised expertise to research projects for internal and external users and develop new capabilities to be available to NST, whilst leading the biological component of multidisciplinary projects within the research theme. The Radiation Biologist will work independently to solve problems, whilst leading projects and instructing and supporting other team members and students involved in collaborative projects.

ORGANISATIONAL ENVIRONMENT

ANSTO leverages great science to deliver big outcomes. We partner with scientists and engineers and apply new technologies to provide real-world benefits. Our work improves human health, saves lives, builds our industries and protects the environment. ANSTO is the home of Australia's most significant landmark and national infrastructure for research. Thousands of scientists from industry and academia benefit from gaining access to state-of-the-art instruments every year.

Nuclear Science & Technology (NST) incorporates ANSTO's research, innovation, landmark research infrastructure and associated platforms and capabilities. NST conducts research and development in relation to nuclear science and technology and connects people, transfers knowledge and provides nuclear-based products and services for the benefit of Australia.

ANSTO undertakes human health research in collaboration with national and international research organisations, hospitals and the users of ANSTO's research infrastructure. The Human Health research theme includes two programs: (i) Impact of radiation on living systems; (ii) Radiotherapy, theranostics and radiotracers for improving health. The programs inform, complement and reinforce each other and draw from ANSTO's broad range of capabilities and intrinsic strengths.

The Radiotherapy and Theranostics Program provides state of the art biology characterisation of new ligands and radiolabelling procedures and develops new radiochemistry methods and tools (chelators and bio-conjugates) to lead the development and supply of new and existing agents for NCEPT and other cancer theranostics. The program endeavours to become an internationally recognised centre of excellence in biology, physics, chemistry and radiopharmaceutical development; for the benefit of the science community, industry and the Australian community at large. Internal customers include all ANSTO Human Health theme researchers, Australian Centre for Neutron Scattering (Dingo beamline in particular), GATRI building

managers and area supervisors, and professional and technical staff. External stakeholders include Universities, medical research institutions and industry.

ACCOUNTABILITIES & RESPONSIBILITIES

Key Accountabilities

- Utilise knowledge and expertise in molecular biology, biochemistry or pharmacology for use in the development and evaluation of radiopharmaceuticals and new neutron capture agents for diagnosis and therapy of disease, establish and validate biological in-vitro techniques, undertake analysis and interpretation of data.
- Lead and develop a pipeline for testing neutron capture agents at ACNS; this includes the establishment of a new radiobiology facility, or refurbishment of an existing one for the assessment and screening of novel neutron capture agents in targeting disease models of interest.
- Carry out procedures relating to in-vivo biodistributions and imaging studies, co-ordinate the development of cell lines and in-vivo models, coordinate with in-vitro work to contribute to research and development outcomes.
- Provide input in setting priorities that align with the Human Health Research theme strategic direction.
- Contribute to research output by working as part of and/or leading project research teams by completing experiments within time, scope and budget.
- As there are a number of laboratories in which the position will be required to perform duties, the position is expected to undertake a range of technical support procedures related to in-vitro tissue and cell studies, autoradiography, histology, in-vivo studies and other related procedures.
- Responsibility to ensure all work undertaken meets strict safety and regulatory frameworks.
- Manage and conduct operational and maintenance activities within biological laboratories to optimise their utilisation and ensure compliance with quality, regulatory and safety requirements.
- Prepare standard operating procedures, work instructions, SWMES, and other regulatory required paperwork.
- Prepare and publish papers, reports, patents and abstracts, including undertaking of literature reviews, surveys and technical reports.
- Establish and maintain external networks and alliances with national and international organisations, research bodies, universities, and other relevant parties with the aim of developing commercial opportunities and other project or development opportunities that benefit ANSTO.
- Pro-actively encourage the sharing of knowledge and experiences and interact with staff of varying backgrounds and experiences to establish productive working relationships.
- Undertake additional duties as required and during periods of leave of other staff.
- Fulfil OHSE responsibilities as specified in AG-2362 of the ANSTO OHSE system.

Decision Making

- The ANSTO values, organisational corporate plan, operational excellence program, the ANSTO Health strategy, NST Research strategy and Human Health strategic plan provide the context for the position.
- The position works within a framework of legislation, policies, professional standards, strategic and resource parameters. Within this framework the position has full independence in determining how to achieve objectives and recommend this to their line manager for endorsement.
- The position is fully accountable for the accuracy, integrity and quality of the content of advice provided to other researchers both internal and external to ANSTO regarding *Radiological Science*, ensuring that decisions are based on sound evidence.
- Determine own work priorities, methods and approaches within the context of agreed work plans and will consult with the line managers on issues that have an impact on the projects or associated activities.

- The levels of authority delegated to this position are those approved and issued by the Chief Executive Officer. All delegations will be in line with the ANSTO Delegation Manual AS-1682 (as amended or replaced).

Key Challenges

- Development of innovative biological methodologies and identification of targets suitable for radiopharmaceutical and NCEPT agent development.
- Developing novel solutions for extending the scope of existing infrastructure and establishing new capabilities.
- Keeping abreast of recent developments within biological sciences, ensuring continual improvements and implementation of best practice and maintain leading edge capabilities in molecular, cell biology and biochemistry techniques.
- Working independently on multiple project tasks to ensure all project milestones are met.
- Carry out work in a highly regulated environment and ensure adherence to all regulations.
- Establish productive working relationships with people of diverse academic backgrounds and varied levels of experience.
- Working in a complex environment, achieving results within tight constraints on time, resources and finances.
- Working within a complex Federally regulated environment involving agencies such as Public Service, ARPANSA, OGTR, NHMRC etc.
- Working within a complex and unfamiliar environment overseas (during international field trips) that are subject to additional regulations, while adhering to the Australian Federal regulations. This challenge will require an agile mindset and the ability to troubleshoot.

KEY RELATIONSHIPS

Who	Purpose
Internal	
Manager	<ul style="list-style-type: none"> • Receive guidance, direction and performance requirements consistent with the business plan and objectives • Provide expert, authoritative and evidence based advice • Recommend and gain endorsement for plans and goals and other initiatives • Provide regular updates on key tasks, and any identified issues
Work area team members (Human Health, ACNS, CAS, Synchrotron, Vivarium, BioSciences, GATRI)	<ul style="list-style-type: none"> • Lead projects with support from team members and work collaboratively to contribute to achieving research theme objectives • Provide expert advice and analysis on a full range of matters to team members. • Provide expert advice and contribute to group decision making processes, planning and goals. • Determine work priorities • Identify and resolve conflicting demands on resources
Stakeholders – internal	<ul style="list-style-type: none"> • Lead projects whilst providing supervision, guidance, advice and support. • Engage with internal safety and quality stakeholder teams to ensure compliance with safety and quality systems.
External	
Stakeholders - external	<ul style="list-style-type: none"> • Provide supervision, guidance, advice and support • Ensure safety and regulatory compliance

Collaborators and Partners	<ul style="list-style-type: none"> • Ensure effective communication, for project planning and co-ordination of activities. • Play an active role and lead discussions during project planning • Report on work outcomes, outputs and results
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POSITION DIMENSIONS

Staff Data

Reporting Line	Reports to the Research Program Manager – Human Health
Direct Reports	Nil
Indirect Reports	Nil

Financial Data (2021/2022)

Revenue / Grants	N/A
Operating Budget	N/A
Staffing Budget	N/A
Capital Budget	N/A
Assets	N/A

Special / Physical Requirements

Location:	Working in different areas of ANSTO as needed including radiation areas under tightly regulated conditions;
Travel:	May be required travel to ANSTO sites from time to time Operational needs (fieldtrips and conferences) require temporary assignments at collaborative/partner facilities within Australia and internationally.
Physical:	Office and laboratory based physical requirements (sitting, standing, minimal manual handling, movement around office and site, extended hours working at computer) Move and transport equipment and radiation safety and containment systems which may require lifting objects of 10-20 kg; Wearing personal protective equipment for the handling of hazardous and/or radioactive material to undertake sterile preparation of materials in a clean environment.
Radiation areas:	May be required to work in radiation areas under tightly regulated conditions Perform duties in an area where radioactive materials are handled under tightly controlled safety conditions Perform duties with and in an area where hazardous chemicals or materials are handled under tightly controlled safety conditions
Hours:	Willingness to work extended and varied hours based on operational requirements
Clearance requirements:	Satisfy ANSTO Security and Medical clearance requirements

Workplace Health & Safety

Specific role/s as specified in AG-2362 of the ANSTO WHS Management System	All Workers Other specialised roles identified within the guideline a position holder may be allocated to in the course of their duties
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ORGANISATIONAL CHART

Refer to published Organisational Chart.

KNOWLEDGE, SKILLS AND EXPERIENCE

1. Degree in Biology, Biochemistry or Pharmacology, or equivalent experience in a research setting coupled with extensive experience in the biological sciences.
2. Demonstrated experience in the evaluation of biological responses to various radiation sources and radiosensitisers.
 - a. In particular, demonstrated experience working with neutron and particle radiation sources for the analysis of, and experimentation with, biological matrices and systems.
3. Demonstrated experience in the application of nuclear and isotopic techniques for the analysis of biological systems.
4. Experience with preparation of successful applications for merit based beamtime at external irradiation facilities (i.e., Australian Synchrotron, ACNS or International Beamlines).
5. Extensive experience in radiation biology, molecular biology and animal physiology.
6. Extensive and demonstrated experience in cell culture techniques including maintenance of cell cultures and cell stocks, radiotracer cell uptake studies, immunocytochemistry techniques, development of new cell-based assays and radioligand binding studies and demonstrated experience in flow cytometry and PCR techniques.
7. Demonstrated experience in working with rodents including biodistribution and imaging studies and associated data analysis.
8. Experience in preparing cells for animal model development and membrane preparations.
9. Project management experience, including the co-ordination of the work of other staff, effective deployment of resources, ability to manage multiple tasks, priority management and organisational skills.
10. Demonstrated high level of interpersonal skills and communicates well with people at various levels within and external to the organisation.
11. Ability to supervise and facilitate multidisciplinary teamwork while working co-operatively with others as part of a team.
12. Highly organised and meticulous approach to work.

VERIFICATION

This section verifies that the line manager and appropriate senior manager/executive confirm that this is a true and accurate reflection of the position.

Line Manager	Delegated Authority
Name: TBA	Name: Ryan Middleton
Title: Research Program Manager	Title: Acting Theme Leader, Human Health
Signature:	Signature:
Date: 19/11/2021	Date: 19/11/2021

Appendix 1

ANSTO Job Families
Accounting & Finance
Administration
Communications & Marketing
Compliance & Regulation
Engineering and Technical
Human Resources
ICT & Digital Solutions
Information & Knowledge Management
Legal
Manufacturing
Monitoring & Audit
Operations
Organisational Leadership
Project & Program
Research
Science
Security & Intelligence
Senior Executive
Service Delivery
Strategic Policy
Trades & Labour