



Australasian College of Dermatologists

Certificate in Reflectance
Confocal Microscopy

**In vivo reflectance cutaneous
Confocal Microscopy
Image Acquisition**

1. Subject information

1.1 Aims

This subject provides students with knowledge and skills to safely acquire quality representative images with an *in vivo* reflectance cutaneous confocal microscope and transmit for expert interpretation.

1.2 Learning outcomes (LO)

At the successful completion of this subject, students should be able to:

LO 1: Describe the principles of *in vivo* cutaneous confocal microscopy, including indications and limitations.

LO 2: Identify normal skin appearance on confocal microscopy

LO 3: Demonstrate ability to safely operate the *in vivo* reflectance confocal microscope, including CalibreID 1500 and 3000 microscopes

LO 4: Accurately identify skin lesions for confocal microscopy imaging and identify the correct imaging protocol based on size, location, dermoscopy and provisional diagnosis

LO 5: Apply the correct nomenclature

LO 6: Apply quality assurance principles and legal considerations, including correct patient identification, labelling, storage, transmission and communication of results

1.3 Learning and teaching activities

This subject will use a range of teaching and learning strategies to address the subject outcomes. These may include:

- Online self-directed modules,
- Online videos
- Private reading
- On-site skills training.

1.4 Entry requirements

This subject will be open to:

- Dermatologists with AHPRA registration or international equivalent
- General practitioners with AHPRA registration or international equivalent
- Any medical professional with Melanography Accreditation
- Anatomical Pathologists with AHPRA registration or international equivalent
- Clinical trial confocal microscopy imaging technicians

1.5 Contact Details

For information regarding this subject, students should in the first instance contact:

Position	Name	Email
Course Coordinator	Dr Bruna Gouveia	Bruna.gouveia@melanoma.org.au
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Student Contact	College staff TBC	admin@dermcoll.edu.au

2. Subject outline and structure

2.1 Subject duration and effort

Students should complete this subject in 1 semester.

This is broken down into (approximately):

- 8 hours of online/self-directed learning which includes end of topic quizzes
- 8-40 hours of a hands-on workshop and self-directed training after completion of the 8 online modules.

2.2 Subject outline

This subject, which contains 8 theoretical online modules and a hands-on workshop, will use a variety of teaching and learning strategies. Using a blended model of learning, you will have access to online tutorials, videos of practical demonstrations, and a hands-on workshop. It is

expected that students engage in all aspects of the subject and attend/complete all online and onsite components.

Upon successful completion of the workshop students will be issued with a certificate of demonstrated clinical competence.

The following table provides an overview of the subject.

Week	Topic	Activities	Assessment	Learning outcome
1	Introduction to Cutaneous Confocal Microscopy	Online module Reading	Online Topic quiz: 10 multiple choice questions	LO1
2	Indications & Limitations	Online module Reading	Online Topic Quiz: 10 True/false or multiple choice questions	LO1
3	Normal skin	Online module Reading	Online Topic quiz: 10 multiple choice or add the correct label questions	LO2
4	Dermoscopy and Image Acquisition	Online module Reading	Online Topic quiz: 10 multiple choice questions	LO4
5	Machine Setup and Operation- Safe operation of the machine, including preparation, importing and exporting of image files	Online module Online videos Reading	Clinical competence assessment after a hands-on workshop (please see below)	LO3
6	Image acquisition, including preparation of the skin, lesion identification, stack number and type required	Online module Reading	- Clinical competence assessment after a hands-on workshop (please see below) - Log book (please see below)	LO4
7	Professional Obligations- Quality assurance, privacy legislation, professional communication, results management	Online module Reading	Online Topic quiz: 10 multiple choice questions	LO6
8	Nomenclature	Reading Online module	Online Topic quiz: 10 multiple choice or add the correct label questions	LO5
9	Hands-on training Workshop	Operating the machine and image acquisition	Attendance of a 3-4h one-on-one workshop followed by confocal clinic attendance and real-life confocal microscopy practice	LO3-4

10	Self-directed training	Image acquisition	Self-directed training and familiarisation with confocal image acquisition prior to the competence assessment.	LO4
11	Clinical competence assessment	In-person assessment	In-person image acquisition quality competence assessment performed after the workshop on 3 lesions.	ALL
12	Post-workshop log book	Log book of 10 cases	Log book of at least 10 sufficient images, which will be assessed remotely according to international guidelines on image acquisition	ALL

2.3 Attendance

Students are expected to maintain a 100% attendance at the face-to face workshop.

3. Assessment

3.1 Assessment tasks

There are a range of formative and summative assessments in this subject. Satisfactory completion of online quizzes is required before attending the hands-on workshop to ensure basic competence and safety is met before passing to the next topic.

To successfully complete the subject, students must complete the assessments outlined below. Each assessment task, and any associated information, is available in the ePortal. Please note that this subject is self-paced. Suggested time frames are provided below to submit compulsory assessments however the only time frame requirement is that all the assessments must be completed and submitted by the end date of your subject.

Assessment Task	Length	Pass mark	Suggested Due Date	Outcome
Assessment 1: Online Quiz (Module 1)	Introduction to Cutaneous Confocal Microscopy 10 MCQ -Unlimited attempts	80%	Week 1	LO1
Assessment 2: Online Quiz (Module 2)	Indications and limitations of confocal 10 True/False case scenarios or MCQ- Unlimited attempts	80%	Week 2	LO1
Assessment 3: Online quiz (Module 3)	Identifying normal skin structures on RCM images 10 MCQ or add the correct label questions - Unlimited attempts	80%	Week 3	LO2
Assessment 4: Online quiz (Module 4)	Key dermoscopic features to image 10 MCQ -Unlimited attempts	80%	Week 4	LO4
Assessment 5: Online quiz (Module 7)	Professional obligations and legal considerations 10 MCQ -Unlimited attempts	80%	Week 6	LO6
Assessment 6: Online Quiz (Module 8)	Nomenclature 10 MCQ or add the correct label questions -Unlimited attempts	80 %	Week 7	LO5

Assessment task	Length	Pass mark	Suggested Submission Date	Outcome
Safe machine operation and image acquisition – Hands-on training workshop for V1500 and V3000	3-4 hour one-on-one hands-on training workshop covering the topics below: • Turning on and off the machine • Lesion identification • Confirm lesion is appropriate for imaging • Patient preparation • Identification of correct microscope type (hand-held or field view) • Preparing the microscope • Positioning the microscope, cords and bed safely • Navigating the skin in depth • Cleaning the microscope • Saving and sending images • Transmitting images • Explain the procedure to a patient • Identify clinical and lesional information to communicate to the reader • Image acquisition protocol followed as per Ho G, Gill M, Grant-Kels J, et al. <i>International expert recommendations on image acquisition for in vivo reflectance confocal microscopy of cutaneous tumors. J Am Acad Dermatol.</i> 2024;90(3):537-544. doi:10.1016/j.jaad.2023.09.086. • Acquire vivastacks from the stratum corneum to upper dermis • Acquire mosaics/single images on the epidermis, junction and upper dermis separately. • Acquire images of the central area of each lesion • Acquire images of the surrounding area / perilesional to check for subclinical components • Send images via Vivateach to the central study repository Please refer to the Competence Assessment Rubric for the marking guidelines.	Not applicable	After completion of 8 online modules	LO3-4

Self-directed training	8-40 hours of clinical attendance and real-life practice, depending on availability and capability	Not applicable	After the workshop, prior to the clinical competence assessment	LO3-4
Clinical competence assessment	In-person clinical competence assessment using V1500. • Students will undertake an image acquisition quality competence assessment • They must be deemed competent for 3 lesions in total • Please refer to the Competence Assessment Rubric for the marking guidelines	Pass/ Fail	After workshop training completed	LO1-6
Log book	Students will submit images and a log book of cases they have acquired. To pass, a minimum of 10 satisfactory cases must be imaged, according to the international consensus protocol, which will be reviewed by an expert reader/ assessor. Images must be obtained using the V1500 machine only. (Ho G, Gill M, Grant-Kels J, et al. International expert recommendations on image acquisition for in vivo reflectance confocal microscopy of cutaneous tumors. J Am Acad Dermatol. 2024;90(3):537-544. doi:10.1016/j.jaad.2023.09.086.)	Pass/ Fail	Post workshop	LO1-6

4. Readings and resources

The following readings are provided in the eportal. Students are required to undertake private research on a range of topics.

Required readings:

Books:

Hofmann-Wellenhof, R., Pellacani, G., Malvehy, J., & Soyer, H. P. (Eds.). (2012). *Reflectance confocal microscopy for skin diseases*. Springer Science & Business Media. (chapter 1 and 2)

Journals:

Que, S. K. T., Fraga-Braghiroli, N., Grant-Kels, J. M., Rabinovitz, H. S., Oliviero, M., & Scope, A. (2015). Through the looking glass: basics and principles of reflectance confocal microscopy. *Journal of the American Academy of Dermatology*, 73(2), 276-284.

Borsari, S., Pampena, R., Lallas, A., Kyrgidis, A., Moscarella, E., Benati, E., ... & Longo, C. (2016). Clinical indications for use of reflectance confocal microscopy for skin cancer diagnosis. *JAMA dermatology*, 152(10), 1093-1098.

Que, S. K. T., Grant-Kels, J. M., Rabinovitz, H. S., Oliviero, M., & Scope, A. (2016). Application of handheld confocal microscopy for skin cancer diagnosis: advantages and limitations compared with the wide-probe confocal. *Dermatologic clinics*, 34(4), 469-475.

Ho G, Gill M, Grant-Kels J, et al. *International expert recommendations on image acquisition for in vivo reflectance confocal microscopy of cutaneous tumors. J Am Acad Dermatol.* 2024;90(3):537-544. doi:10.1016/j.jaad.2023.09.086.

Websites:

https://wiki.cancer.org.au/australia/Guidelines/Melanoma/Confocal_microscopy