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Title : **Monitoring of Utilization Rate for Microscopes Maintained by NOBIC**

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Monitoring of Utilization Rate for microscopes maintained by NOBIC - STANDARD OPERATING PROCEDURES

1. INTRODUCTION

1.1 OBJECTIVE

This Standard Operating Procedure (SOP) will provide information necessary for monitoring of utilization rate for microscopes managed by NOBIC. Additional information is provided to encompass additional processing when needed.

1.2 SCOPE

This Standard Operating Procedure (SOP) covers the procedures to monitor the utilization rate for microscopes at LKCMedicine shared facilities or LKCMedicine research laboratories that are managed by NOBIC, the 1st of which is given in the Appendix.

1. This equipment is accessible to all researchers at LKCMedicine and through the school's participation in SingaScope network also to researchers from other institutions in Singapore on pay per use basis.
2. The use of the microscopes can be booked by PPMS booking system used by the whole SingaScope network. However, in certain cases a LKCMedicine research group can request priority access to a particular microscope, critical for their research.
3. Such priority access will be captured in PPMS booking system. Such priority access does not exempt the PI and members of the group from an obligation to follow this SOP for microscope usage monitoring.

1.3 RESPONSIBILITIES

Principal Investigator (PI), Laboratory Manager (LM) and/or Person-in-charge (PIC)

The NOBIC LM and, where applicable, PI/PIC are responsible for ensuring that the utilization of microscopes is recorded electronically such that utilization rate can be calculated. The LM/PIC shall check at least weekly for any obvious irregularities in usage records. The PI, via the LM, is ultimately responsible for ensuring that this SOP (and other applicable NTU-wide and nation-wide guidelines, SOPs and

regulations) are adopted in the shared facilities and/or research laboratories where the microscopes are installed.

Laboratory personnel

This SOP shall be practiced by students, laboratory technologists, research assistants and research fellow upon receipt of training for the equipment. Laboratory personnel shall be responsible for adhering to the routine logging in of usage for the equipment as required by the SOPs. It is the responsibility of the users to follow the SOP as described and to inform the LM about any deviations or problems that may occur while performing the procedure.

2. PROCEDURES

Utilization of the microscopes must be recorded electronically through booking system (PPMS) and/or tracking software (PPMS-RT). Automated monitoring such as installation of tracking software such as log viewer is preferred; however, installation is subjected to availability of a computer as a component of the asset, internet connection, and whether the software interfere with functionality of the asset.

1. The checking of proper recording in the tracking software (PPMS-RT) will be done at least weekly by the LM. In the case of irregularities detected that may arise from malfunction of the tracking software, LKCMedicine IT will be informed by the LM and take necessary steps to restore the functionality of the tracking software.
2. In the case a user notices that the tracking software is not functioning, the user shall report this to the LM following SOPs for Incident and Equipment Fault Reporting.
3. If usage tracking software is not in place, it is the responsibility of the user to make sure all used time is booked in the booking system.
4. The utilisation rate will be calculated on a monthly basis. Research Committee (RC)/ School Management Board (SMB) will be provided the figures on a yearly basis or as requested for information.

Methodology of Computing Utilization Rate

5. Utilization for the equipment is calculated based on the number of working days in a month using the in-built function in MS Excel (not taking into account public holidays or off days other than Saturdays and Sundays) and 9.5 run hours per day (working hours 8.30 am – 6.00 pm).

6. Where usage tracking software is used (PPMS-RT), the actual recorded usage hours will be used. For equipment where such information is not available, the hours booked in the booking system will be used.

Annex 1 – List of microscopes maintained by NOBIC

#	Microscope	Asset Nr.	Location
1	2-photon microscope - Nemo	5201039736	EMB 07-07-01
2	2-photon microscope - Stuart	5201039315	CSB 12-02P-01
3	2-photon microscope FVMPE-RS	5201001825-0	CSB 10-02N-01
4	High Content Screening Microscope - IN Cell 2200	5201001910-0	EMB 07-07-01
5	High Content Screening Microscope - Operetta CLS	5201002882-0	CSB 11-02T-01
6	Inverted Confocal Airyscan Microscope-LSM800	5201002085-0	EMB 07-07-01
7	Inverted Fluorescence Live Cell closed-box M.-CD7	5201002953-0	EMB 07-07-01
8	Inverted Fluorescence Live Cell Microscope - AO7	5201002952-0	CSB 11-02T-01
9	Inverted Live Cell Confocal Microscope-LSM800 Airy	5201002951-0	CSB 11-02T-01
10	Lightsheet Microscope	5201001728-0	EMB 04-02Y, Zebrafish facility
11	Lightsheet Microscope with Cleared Specimen Option	5201003097	CSB 11-02P-01
12	Slide scanner	5201002503-0	CSB 11-02T-01
13	Stereo Microscope Axio Zoom V16	5201002920-0	EMB 04-02Y, Zebrafish facility
14	TiE inverted fluorescence microscope	5201001736	EMB 03-02Y
15	Upright confocal - Animal Research Facility	5201001704-0	CSB 19-03C-01, ARF
16	Upright Confocal Microscope-LSM800	5201002084-0	EMB 04-02Y, Zebrafish facility
17	Upright fluorescence microscope - Axio Imager M2	5201002921	EMB 04-02Y, Zebrafish facility
18	Upright Fluorescence Microscope - DM5500	5201001542	EMB 03-02Y