

Category	Tier Nr.	Name	Description	Example Experiment Type	Example Labelling	Optical calibration	Intensity calibration	Mechanical calibration	Experimental/ Sample	Microscope hardware specifications	Image acquisition settings
Descriptive	1	Minimum Information/ Material & Methods	Reporting qualitative effects, or effects that require simple quantification including the identification of non-refractive limited objects followed by basic feature extraction and statistical analysis	Transfection control, viability assay, counting of cells and nuclei, expression level measurements, localization of markers in cellular sub-compartments	FISH, Immuno Fluorescence, Fluorescent Protein (FP) labelling	not required; recommended quarterly	not required; recommended annually		experimenter name; experiment description and date; sample description; mounting medium; temperature and CO2 conditions;	microscope manufacturer, model and type; light source manufacturer, wavelength and type; objective manufacturer, magnification, NA and correction; filter/dichroic transmittance range; detector manufacturer and type	acquisition date; immersion liquid name and refractive index; illumination type and intensity; fluorophore; exposure time; pixel dwell time; channel name, color, contrast method and acquisition mode; image dimension order and number; physical pixel size x, y, and z
	2	Advanced Quantification and/or Live Cell Imaging	Identification and localization of refraction-limited particles, super-resolution microscopy, tracking of intracellular dynamics	Diffraction-limited spot localization, measurement of distances, co-localization studies, signal-starved features, advanced processing, cell tracking and single-particle tracking, dynamic expression level quantification	All of the above + Single Molecule (SM) FISH, CasFISH, SM Proximity Ligation Assay (PLA), dCas9-based labelling, OligoPaint	required monthly	highly-recommended monthly to quarterly		O2 pressure, and humidity conditions; refractive index of the mounting medium; thickness of the coverglass	detailed microscope table, light source, light source coupling, transmittance light path, magnification, sample positioning, focusing, autofocus, filter, dichroic, additional optics and detector specification	illumination attenuation; objective temperature and iris aperture; immersion liquid measured refractive index; sample positioning settings; detector integration; lighpath configuration
Analytical	3	Manufacturing/ Technical Development/ Full Documentation	Full documentation of microscopic setup, image acquisition and quality control	Microscopy hardware manufacturing; development of novel unproven technology in both commercial and academic settings; full reproducibility of microscopy set-up and image acquisition settings	All of the above	required for every acquisition	required monthly to quarterly		all the metadata specified by the data model - including any novel technology-specific metrics		