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A Practical Guide to Basic Laboratory Andrology

Second edition

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David Mortimer , Lars Björndahl , Christopher L. R. Barratt , José Antonio Castilla , Roelof Menkveld , Ulrik Kvist ,

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Abbreviations

A list of abbreviations and acronyms commonly used in andrology and ART laboratories that may be used in this book without further definition is provided below. Standard SI units and chemical formulae are not defined here, nor are standard symbols and many abbreviations that are in general English usage.

A23187	a calcium ionophore
AATB	American Association of Tissue Banks (USA)
AI	artificial insemination (unspecified source of spermatozoa)
AID	artificial insemination by donor (no longer used since the advent of AIDS, see DI and TDI)
AIDS	acquired immunodeficiency syndrome, caused by HIV infection
AIH	artificial insemination homologous, or artificial insemination by husband
ALH	amplitude of lateral head displacement, a sperm kinematic measure (µm)
APAAP	alkaline phosphatase: anti-alkaline phosphatase complex
AR	acrosome reaction
ARIC	acrosome reaction following ionophore challenge
ART	assisted reproductive technology
ASAB(s)	antisperm antibody(ies)
ASRM	American Society for Reproductive Medicine (USA)
ATP	adenosine triphosphate
AZF	azoospermia factor, a region on the Y-chromosome
BBT	basal body temperature
BCF	beat/cross frequency, a sperm kinematic measure (Hz)
BSA	bovine serum albumin (Cohn fraction V)
CAP	College of American Pathologists (USA)
CASA	computer-aided sperm analysis (<i>not</i> computer-automated semen analysis)
CBS	Cryo Bio System (Paris, France; part of IMV), the manufacturer of <i>High Security Straws</i> for cryobanking spermatozoa
CD (-ROM)	compact disk (read-only memory)
CD45	the ‘pan-leucocyte’ antigen
C.I.	Colour Index number (for stains)
CJD	Creutzfeldt-Jakob disease
CLIA	Clinical Laboratory Improvement Amendments (USA)
CMV	cytomegalovirus
COLA	Commission on Laboratory Accreditation (USA)
COSHH	control of substances hazardous to health
COVID-19	coronavirus disease 2019, caused by the SARS-CoV-2 virus
CPA	cryoprotective agent <i>or</i> Clinical Pathology Accreditation (UK)
CPM	cryoprotectant/cryopreservation medium
cryo	cryopreservation or cryopreserved
CSF	cryosurvival factor, the proportion of motile spermatozoa post-thaw expressed as a percentage of the motile spermatozoa pre-freeze

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CV	coefficient of variation
CZBT	competitive (sperm-)zona binding test
–D	sometimes added to acronyms such as IVF to denote the use of donor spermatozoa
D	the fractal dimension, used as a kinematic measure of sperm movement (no units)
DFI	(sperm) DNA fragmentation index, a result provided by the SCSA
DGC	density gradient centrifugation (sperm preparation method)
DHA	docosahexaenoic acid
DI	donor insemination
DMSO	dimethyl sulphoxide (a cryoprotectant and also a carrier molecule for A23187)
DNA	deoxyribonucleic acid
DPX	a microscopy mountant
DSUS	direct swim-up from semen (sperm preparation method)
DTT	dithiothreitol
DVD	digital versatile disc
EBV	Epstein-Barr virus
ECA	European Cooperation for Accreditation
EDTA	ethylenediaminetetraacetic acid, a chelator of divalent cations
EFQM	European Foundation for Quality Management
EGTA	ethyleneglycol tetraacetic acid, a chelating agent with a high affinity for calcium ions
EQA	external quality assurance/assessment
EQAP	external quality assessment programme
EQAS	external quality assessment scheme
EQC	external quality control
ESHRE	European Society of Human Reproduction and Embryology
EtOH	ethyl alcohol or ethanol
EU	European Union (<i>not</i> enzyme unit)
FDM	Hamilton Thorne CASA-II software proprietary abbreviation for the fractal dimension ‘D’
FITC	fluorescein isothiocyanate, a fluorochrome
FMEA	failure modes and effects analysis
FMLP	formyl-methionyl-leucyl-phenylalanine, a purportedly leucocyte-specific probe to induce the generation of ROS
FNA	fine needle aspirate (a technique for performing TESA)
FSH	follicle stimulating hormone
FW	formula weight of a chemical or compound, see also MW (molecular weight)
GAT	Kibrick gelatin agglutination test for sperm agglutinating antisperm antibodies
GEYC	glycerol-egg yolk-citrate, a modified Ackerman’s CPM for human spermatozoa
GLP	Good Laboratory Practice
GMP	Good Manufacturing Practice
H33258	Hoechst dye 33258, a DNA fluorochrome that can be used as a vital stain
HA	hyaluronic acid <i>or</i> hyperactivation/hyperactivated (sperm motility)
HBV	hepatitis B virus
hCG	human chorionic gonadotrophin
HCV	hepatitis C virus
H-H	head-to-head sperm agglutination
H-MP	head-to-midpiece sperm agglutination
H-T	head-to-tail sperm agglutination
HEPES	N-(2-hydroxyethyl)piperazine-N’-(2-ethanesulphonic) acid, a zwitterionic pH buffer, pKa at 25°C = 7.5, useful pH range = 6.8–8.2
HEPT	(zona-free) hamster egg penetration test
HFEA	Human Fertilisation and Embryology Authority (UK)
hFF	human follicular fluid

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HIV	human immunodeficiency virus, types -1 and -2 (causes AIDS)
HMT	hyaluronate migration test
HOS test	hypo-osmotic swelling test
HPF	high power field (40× objective)
HPM	high power magnification (40× objective)
HPV	human papilloma virus
HSA	human serum albumin (Cohn fraction V)
HSPM	human sperm preservation medium, a particular CPM formulation for human spermatozoa
HSV	herpes simplex virus
HTF	human tubal fluid culture medium
HTLV	human T-cell lymphotropic virus, types -I and -II (HTLV-III was renamed HIV-1)
HZA	hemizona assay
IACC	Inter-American Accreditation Co-operation (USA)
IBT	Immunobead test
ICI	intra-cervical insemination
ICSI	intracytoplasmic sperm injection
ID	identification
Ig	immunoglobulin, also as IgA, IgG and IgM isotypes
ILAC	International Laboratory Accreditation Cooperation
IM	the immotile sperm fraction in WHO5
IMV	Instruments de Medicine Vétérinaire (L'Aigle, France), the original manufacturer of semen straws
IPA	isopropyl alcohol
IQA	internal quality assurance (scheme)
IQC	internal quality control (scheme)
ISO	International Organization for Standardization (Geneva, Switzerland)
IU	International Unit (IU for enzymes refers to the conversion of 1 µmole of substrate/min at 37°C
IUI	intra-uterine insemination
IVF (-ET)	<i>in-vitro</i> fertilization (and embryo transfer)
JCAHO	Joint Commission on Accreditation of Healthcare Organizations (USA)
KPI	Key Performance Indicator (plural = KPIs)
LCR	ligase chain reaction
LH	luteinizing hormone
LIN	linearity, a sperm kinematic measure calculated as $VSL/VCL \times 100$ (%)
LN2	or as LN ₂ , liquid nitrogen
LPF	low power field (10× objective)
LPM	low power magnification (10× objective)
MAR	mixed antiglobulin reaction
MeOH	methyl alcohol or methanol
MESA	micro(surgical) epididymal sperm aspiration
MI	(sperm) motility index
MOPS	3-(N-morpholino)propanesulphonic acid, a zwitterionic pH buffer, pKa at 25°C = 7.2, useful pH range = 6.5–7.9
MSDS	material safety data sheet
mtDNA	mitochondrial DNA
MW	molecular weight of a compound based on its chemical formula
NA	numerical aperture (of a microscope objective)
NADH	β-nicotinamide adenine dinucleotide, reduced form
NAFA	Nordic Association for Andrology
NATA	National Association of Testing Authorities (Australia)

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NCD	nuclear chromatin decondensation
NH	negative high phase contrast microscope optics
NP	the npn-progressive sperm fraction in WHO5
NPM	non-progressively motile (spermatozoa)
OI	oil immersion
PBS	phosphate buffered saline
PCR	polymerase chain reaction
PCT	post-coital test
PDCA	the Plan-Do-Check-Act quality cycle or Deming wheel
PESA	percutaneous epididymal sperm aspiration
PETG	polyethylene terephthalate glycol
PL	positive low phase contrast microscope optics
PMA	phorbol 12-myristate 13-acetate, an agent that provokes the generation of ROS by leucocytes and spermatozoa
PNA	peanut agglutinin, a lectin from <i>Arachis hypogea</i> that binds to the outer acrosomal membrane
PNP	p-nitrophenol
PNPG	4-nitrophenyl α-D-glucopyranoside
PR	(sperm motility) progression rating, also the progressive sperm fraction in WHO5
PSA	prostate specific antigen <i>or</i> <i>Pisum sativum</i> (pea) agglutinin, a lectin that binds to the acrosomal contents
PT	proficiency testing
PVA	polyvinyl alcohol
PVC	polyvinyl chloride
PVP	polyvinyl pyrrolidone
QA	quality assurance
QC	quality control
QI	quality improvement
QMS	quality management system
RBC	red blood cell (erythrocyte)
RCA	root cause analysis
RFID	radio frequency identification (device)
ROS	reactive oxygen species (a type of free radical)
RPLND	retro-peritoneal lymph node dissection
SARS-CoV-2	severe acute respiratory syndrome coronavirus 2, causes COVID-19
SCD test	sperm chromatin dispersion test
SCMC test	sperm-cervical mucus contact test
SCSA	sperm chromatin structure assay
SD	standard deviation
SDF	sperm DNA fragmentation
SDS	sodium dodecyl (lauryl) sulphate
SEM	standard error of the mean <i>or</i> scanning electron microscopy
SIG	Special Interest Group (of a professional society)
SIT	Isojima sperm immobilization test for complement-dependent cytotoxic antisperm antibodies
SMIT	sperm-mucus interaction test
SOP	standard operating procedure
SPA	sperm penetration assay (American term for the HEPT)
STD	sexually transmissible disease
STR	straightness, a sperm kinematic measure calculated as VSL/VAP × 100 (%)
TAT	Friberg tray agglutination test for sperm agglutinating antisperm antibodies
TBS	Tris buffered saline

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TDI	therapeutic donor insemination (an alternative to DI)
TEM	transmission electron microscopy
TES	N-[Tris(hydroxymethyl)methyl]-2-aminoethanesulphonic acid, a zwitterionic pH buffer, pKa at 25°C = 7.5, useful pH range = 6.8–8.2
TESA	testicular sperm aspiration
TESE	testicular sperm extraction, usually by surgical testicular biopsy
TEST	or TES-Tris, a buffer combination of TES and TRIS
TQM	total quality management
TRIS	N-Tris(hydroxymethyl)aminomethane, pKa at 25°C = 8.1, useful pH range = 7–9
TRITC	tetramethyl rhodamine isothiocyanate, also known simply as rhodamine, a fluorochrome
tt	tail-tip (of the spermatozoon)
T-T	tail-to-tail sperm agglutination
TUNEL	terminal deoxynucleotidyl transferase
TUR	trans-urethral resection, of the prostate
TYG	TEST-yolk-glycerol, a particular CPM formulation for human spermatozoa
TZI	Teratozoospermia Index
U	(International) Unit; see IU
UPS	uninterruptible power supply
<i>u.v.</i>	ultraviolet
VAP	average path velocity, a sperm kinematic measure (µm/s)
vCJD	variant Creutzfeldt-Jakob disease
VCL	curvilinear velocity, a sperm kinematic measure (µm/s)
VCR	videocassette recorder
VHS	the most common standard for domestic and commercial videocassettes
VOC	volatile organic compound
VSL	straight line velocity, a sperm kinematic measure (µm/s)
WBC	white blood cell (leucocyte)
WHMIS	Workplace Hazardous Material Information Scheme (now generally superseded)
WOB	wobble, a sperm kinematic measure calculated as VAP/VCL × 100 (%)
WHO	World Health Organization (Geneva, Switzerland)
XHT	crossed hostility test
ZBT	(sperm-)zona binding test
ZIKV	Zika virus
ZP	zona pellucida
ZP3	zona pellucida glycoprotein 3