



Instrumentation - Germany

Molecular & Cell Biology

Biologics, Bioassay, Potency Assay, development and release testing

Microplate Reader & Read Outs Biology

Tecan Infinite™ M200 Microplate Reader (Absorbance, Luminescence, Fluorescence, Time-resolved fluorescence (TRF))	4
Tecan Infinite™ M1000 Pro Microplate Reader (Abs., Lumi., Fluor., TRF/HTRF, AlphaScreen® & AlphaLISA®)	1
Tecan Spark® multimode microplate reader for high-performance cell-based fluorescence assays	1
Molecular Devices SpectraMax i3x Multi-Mode Readers (Abs., Lumi., Fluor., AlphaScreen®)	9
Molecular Devices Gemini™ XPS Fluorescence Reader	1
Molecular Devices SpectraMax® Plus 384 microplate spectrophotometer	1
PerkinElmer EnVision® Xcite 2105 multimode plate reader (Abs, ultra-sensitive luminescence, Fluor., TRF and TR-FRET, AlphaScreen®, AlphaLISA®)	1
Wyatt Technologies DynaPro® Plate Reader III (dynamic light scattering (DLS))	1
Agilent/BioTek Multi-Mode Microplate Reader	1
Agilent/BioTek Microplate Spectrophotometer	1
Meso Scale Diagnostics (MSD) MESO QuickPlex® SQ 120 MM	2

Flow Cytometry, Fluorescence-Activated Cell Sorting (FACS)

Beckman Coulter CytoFLEX Flow Cytometer	2
Beckman Coulter Cytomics FC500 MPL Flow Cytometer	1
Merck Guava easyCyte™HT Benchtop Flow Cytometer	2

Label-Free Biomolecular Interaction Analysis (SPR & BLI)

Cytiva Biacore T200 instrument (surface plasmon resonance (SPR))	4
ForteBio Octet® RED 384 instrument (Bio-Layer Interferometry (BLI))	1

Biologics Automation / Robotics

Hamilton Microlab STAR automated Liquid Handling	1
Integra Bioscience VIAFLO 96 automated pipettes	1

Biologics Testing Miscellaneous

KingFisher Flex Thermofisher	2
Beckman Coulter Vi-CELL™ XR Cell Viability Analyser	2
NucleoCounter® NC-200™ automated cell counter	2
BioTek ELx405™ deep well microplate washer	1
BioTek 405 TS microplate washer	10
Tecan HydroSpeed™ microplate washer	3

PCR, qPCR, RT-qPCR, ddPCR

Applied Biosystems™ 7500 fast qPCR	9
Applied Biosystems™ 7500 Real Time PCR system	1
Bio-Rad C1000 Touch™ Thermal Cycler PCR	3
Bio-Rad QX200 AutoDG Droplet Digital PCR (ddPCR) System	1



Eppendorf Thermo Cycler for PCR	1
Kisker Biotech DNA Workstation L020-C with UV / Air Cleaner	1
VWR Peqlab PCR Workstation Pro	3

Electrophoresis system, SDS-PAGE, Western Blot

Amersham Biosciences Gel colour	1
Bio-Rad Digital Imager / Chemi Doc MP	3
Invitrogen Electrophoresis Systems	6
Thermo Scientific™ Electrophoresis System	2

Capillary Electrophoresis (CE)

Biologics, e.g. Protein analysis, purity, identity and heterogeneity

Agilent 2100 Bioanalyser automated CE	1
Beckman Coulter® PA 800 plus CE (PDA, UV)	8
ProteinSimple iCE3™ CE	2
ProteinSimple Maurice® cIEF (capillary isoelectric focusing) and CE-SDS (SDS-PAGE into the capillary format)	1

Microbiology & Miscellaneous

Sterile and non-sterile, Raw material testing, Finished product Testing

Endotoxin detection via Limulus amoebocyte lysate (LAL) or recombinant Factor C (rFC)

Agilent/BioTek ELx808™ Incubating Absorbance plate reader, EndoScanV™ v6 Software (ESV6) for KTA, KCA	2
Tecan Sunrise™ Photometric incubating Plate Reader with EndoScan V Software for KTA, KCA	1
Thermoblocks for Gel-clot LAL test	2

Microbial Identification

Bruker MALDI Biotyper® sirius one GP (MALDI-TOF/MS), for microbial identification of bacteria, yeast, fungi	1
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Sterility and Bioburden, total aerobic microbial count (TAMC) total yeast/ mold count (TYMC), Environmental Monitoring, Water Testing

Air Samplers (different manufactures)	6
Autoclaves (diverse, Mediaprep 30 (Systec), SHP Steriltechnik Laboklav 160 MSL)	9
Biological Safety Cabinets	4
Clean Room Benches (Enviroco, BDA, Heraeus, Thermo Fisher Scientific)	28
Clean Room Cabinet, Class A in B (ISO 100 in 10000)	1
Eddy Jets 2 Spiralplater (IUL Instruments)	4
Laser Particle Counters (MetOne HHPC 2+, Lighthouse, AeroTrak)	5
Pall Vacuum Filtration Devices	3
Sterisart® Universal Pump for Membrane Filtration	3

Total organic carbon (TOC) Analysis & Conductivity

GE Analytical Instruments Sievers M9 TOC Analyser - simultaneous testing of TOC and conductivity	2
Mettler Toledo S230-USP/EP-Kit Conductivity	3
Shimadzu TOC-VWP Analyser with Autosampler ASI-V	4
Thermo Scientific™ Orion 8103BN Semi-Micro pH Electrode /Orion Star A111 pH Meter & A212 Conductivity	3



Bioassay & Microbiology miscellaneous

Microcentrifuges & Centrifuges	22
Miele Washer-Disinfector	1
MMM Washer Disinfectors	2
VeriPac 455-M5 Vacuum Decay CCIT (Container Closure Integrity Testing) - (Internal NOTE other CCIT via ICO)	1

Spectrophotometry / Spectroscopy

Small Molecules & Biologics & Protein Characterisation, Particle Characterisation

Agilent 8453 Uv-Vis (UV/Vis) spectrophotometer	2
Agilent Cary Uv-Vis 100 (UV/Vis) spectrophotometer	1
Bruker MPA I FT-NIR spectrometer Fourier-transform (FT) Near-Infrared (NIR) (non-GMP in KON)	3
Bruker MultiRAM FT Raman Spectrometer (Fourier-transform (FT)) (non-GMP)	1
CTech™ SoloVPE® System (UV/Vis)	2
Dr. Lange LICO 300 Colorimeter	1
Hach LICO 690 Colorimeter	1
Hach Turbidimeter (2100AN, 2350, 2360)	4
NANODROP ONE UV/Vis Spectrophotometer	2
PerkinElmer® LAMBDA™ 25 and 35 and 365 (UV/Vis)	6
Thermo Scientific™ Evolution™ 300 BB UV-Visible (UV-Vis) spectrophotometer	1
Thermo Scientific™ Nicolet™ iS™ 10 FT-IR spectrophotometer (Fourier-transform (FT) infrared (IR))	1
VWR Visible spectrophotometer, V-1200 (UV/Vis)	1

Dissolution (Wirkstofffreisetzung)

Release testing (Dissolution Tests werden durchgeführt, um die gleichbleibende Qualität der Chargen sicherzustellen, eine Prozesskontrolle zu gewährleisten)

7 types of USP dissolution apparatus: Type 1 Basket apparatus; Type 2 Paddle apparatus; Type 3 Reciprocating cylinder; Type 4 Flow through cell apparatus; Type 5

Agilent Bio-Dis III Reciprocating Cylinder Apparatus (USP 3)	1
ERWEKA DT 1212, 12 sample slots (Dissolution Tester, DT) (USP 1 & 2)	1
ERWEKA DT 1412, 12 sample slots (USP 1 & 2)	7
ERWEKA DT 1420, 12 sample slots (USP 1 & 2)	1
ERWEKA DT 600 HH, 6 sample slots and 6 rotation cylinder (USP 1 & 2)	7
ERWEKA DT 620 HH, 6 sample slots and 6 rotation cylinder (USP 1 & 2)	2
ERWEKA DT 700 (DT 7R), 6 sample slots (USP 1 & 2)	3
ERWEKA DT 700 Disso intrinsic (dissolution behaviour of PURE material)	1
ERWEKA DT 700 Lambda 25 (UV Online System) 6 sample slots (USP 1 & 2)	3
Hansen Research Vertical Diffusion Cell or Franz Cell (Franz-Zellen)	1
RIGGTEK GmbH DosaPrep DissoPrep DPX8-4 ("Degaser", z.B. Medien)	7
RIGGTEK GmbH easyDISS TX8 (different temperature, + 5 to + 50°C)	5
Sotax AT XTEND Dissolution Apparatus (half automated sampling)	3
Sotax AT7 Smart + ASD (automated sampling) (internal only: old, do not promote)	5
Sotax AT7 smart + Lambda25 (UV Online System) (internal only: old, do not promote)	4
Sotax Flow-Through Cell CE7 smart Open system (USP 4)	1



VanKel VK 7000 Dissolution System - Operating Temperature: +5 to 55°C	1
VWR® incubation shaker Typ 1570 Disso USP 2 - Cabinet	1

Particle Characterisation

Particle Size Distribution (PSD), Particle Size Analysis by Laser-Diffraction, X-ray Powder Diffraction (XRD), Scanning Electron Microscopy (SEM) and Optical Microscopy, Transmission electron microscopy (TEM)

Adelphi Manufacturing Apollo II Liquid Inspection Unit	4
Bruker HYPERION FT-IR Microscope (Fourier-transform (FT) infrared (IR))	1
Bruker SENTERRA confocal Raman microscope	1
Beckman Coulter HIAC 9703+ Liquid Particle Counter	1
Joel Neo-Scope JCM6000 (incl. EDX detector) Transmission electron microscopy (TEM) (non-GMP)	1
Malvern Panalytical MasterSizer 2000 (Scirocco and Hydro dispersion units) for PSD	3
Malvern Panalytical MasterSizer 3000 (Aero S and Hydro MV dispersion units) for PSD	1
Malvern Panalytical X'Pert ³ X-Ray Powder Diffraction	1
Olympus CX31 fixed specification binocular biological microscope LBSF	1
PAMAS Sub Visible Particle Counter (PAMAS, CX31 LBSF)	3
Bio-Techne MFI 5100 Flow Microscope System	1
Sympatec HELOS/BF (ASPIROS dispersion unit) for PSD	1

(Ultra) High Performance Liquid Chromatographic (HPLC, UPLC)

Small molecules and Biologics, e.g. assay purity content, Identification, Amino Acid analysis

HPLC and UPLC Device

Agilent 1100 HPLC	12
Agilent 1200 HPLC und 1220 Infinity HPLC	5
Agilent 1260 Bio-intert HPLC	3
Agilent 1260 Infinity II LC Amino Acid Analyser DAD & FLD with post-column derivatisation of ninhydrin-positive substances	1
Agilent 1260, 1260 Infinity, 1260 infinity II HPLC	37
Agilent 1290 Infinity II UPLC	6
Waters TM 2695 and 2996 HPLC	25
Waters TM Acquity & Acquity H-Class Bio UPLC	24
Waters TM Acquity H-Class UPLC + QDa Mass Spectrometer (Double entry, also in MS section)	3
Waters TM Acquity Premier UPLC	5
Waters TM Arc HPLC	5

HPLC & UPLC detectors Detectors (div. Manufactures)

Corona Charged Aerosol (CAD)	5
Evaporative Light Scattering (ELSD)	2
Fluorescence (FLD)	22
Multiple Wavelength (MWD)	7
Photodiode Array (PDA) / DAD	93
QDa Mass Spectrometer (for UPLC)	3



Refractive Index (RID)	6
Ultraviolet UV (VWD/TUV) UV/Vis	20
VWD G7114A (for UPLC)	1

HPLC & UPLC pre- & post column modification / derivatisation

Pickering Onyx PCX (Nachsäulenderivatisierung für Aminosäureanalytik) zu Agilent 1260 Infinity II	1
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Gas Chromatography (GC), Mass Spectrometry (MS)

Small molecules and Biologics, e.g. Assay purity content, Identification, Residual solvent persistent organic pollutants (POP) analysis

GC Device / Detector (Flame Ionization Detector, FID or MS)

Agilent 7890 GC and single quadrupole MS 5977C (GC/MS)	2
Agilent 7890 GC and single quadrupole MS 5978 (GC/MS)	1
Agilent ESI (Elektrospray-Ionisation) / APCI (atmospheric pressure chemical ionization (APCI)) Micro TOFQ Mass Spectrometer (LC/MS)	1
Agilent HPLC ESI / APCI MS + SPE NMR Interface (LC/MS to Nuclear Magnetic Resonance)	1
Agilent SIM 6890N und 6890 (Head space and liquid injector) + MS 5973, G1530A - Low Thermal Mass	4
Agilent SIM 7890A & 7890B (Head space and liquid injector)	6
Agilent Liquid Autosampler (7683 B, G4567A)	4
Agilent Headspace Autosampler (G1888, 7697A)	4
Bruker MALDI Biotyper® sirius one GP (MALDI-TOF/MS), for microbial identification of bacteria, yeast, fungi	1
PerkinElmer® Clarus® GC 690	1
PerkinElmer® Clarus® GC680	2
Shimadzu GC/MS	1
Thermo Scientific™ DFS™ Magnetic Sector GC-HRMS (exclusively validated for persistent organic pollutants (POP) analysis)	2
Waters™ Acquity & H-Class QDA Mass Spectrometer (LC/MS) (Double entry with HPLC)	3

Wet Chemistry & miscellaneous

*Raw material testing, Finished product Testing, Dissolution, particle characterisation and many more
Water content by Karl-Fisher titration, Nitrogen and Proteins determination according to Kjeldahl*

Advanced Instruments Osmometer 3320	5
Anton Paar Density meter DMA 4500 M	2
Bank Shear Tester	1
Behr-Labor behrotest® Kjeldahl Digestion Apparatus	1
Behr-Labor behrotest® Kjeldahl Nitrogen Determination Device	1
Behr-Labor behrotest® Steam distillation unit (S3)	1
Breaking Strength/Hardness Tester	3
Brookfield Rotational Viscosimeters (DV-III ULTRA, LVT & RVT) & Rheometer	4



CAMAG® TLC Visualiser / Automatic TLC Sampler (Thin-Layer Chromatography, TLC)	1
Density Meter	5
Disintegration Tester	1
Friability Tester	1
Haacke Rotational Viscosimeters (VT iQ)	2
Kontron Instruments Fluorometer SFM 25	1
Krüß Automatic Polarimeter P8000-T with circulation thermostat temperature control	1
Krüß Digital refractometers with Peltier temperature control DR6000-T	3
Krüß KSP 1N Melting Point Apparatus (Range)	1
Laminar Flow Boxes	20
Lauda Viscotemp 15 und ECO SILVER Capillary Viscosimeter	1
Metrohm 851 Titrando titration system plus Oven Sample Rack 874 (colourimetric)	4
Metrohm Electronic Titrators (716 DMS Titrino & 906 Titrando + 803 TI Stand)	2
Metrohm KF-Titrando Karl-Fisher titration system 701 plus 703 TI Stand (volumetric)	4
Metrohm KF-Titrando Karl-Fisher titration system 751 plus 703 TI Stand (volumetric)	4
Metrohm KF-Titrando Karl-Fisher titration system 890 plus 803 TI Stand (volumetric)	5
Mettler Toledo, SevenExcellence benchtop meter (Conductivity and pH Meter)	1
Peel Adhesion Tester	1
PerkinElmer® Polarimeter Modul 341	3
Probe Tack Tester	1
Safety Cabinet	4
Sartorius QUINTIX3102 Top-loading Balances & diverse Balances	34
Schorpp Gerätetechnik APA II (Point) Melting Point Apparatus	1
Stable Micro Systems TA.XTplusC Texture Analyser	1
Stomacher® Laboratory blenders	4
Suntester	1
Ultrasonic baths	13

Aerosol Characterisation

Nasal sprays, Spray pattern and Particle / Droplet Size Distribution (DSD) (NOTE: dropl size distribution by Aerodynamic Particle Size Distribution Next Generation

Copley Scientific Andersen Cascaden Impactor (ACI)	1
Copley Scientific Breath Simulator 100i (BRS)	1
Copley Scientific Fast Screening Impactor (FSI)	1
Copley Scientific Next Generation Impactor (NGI)	2
Malvern Panalytical Spraytec laser diffraction system	1

Elemental Analysis

Determination of Elements

Agilent ICP-MS 7900 (inductively coupled plasma mass spectrometr, ICP-MS)	1
PerkinElmer® Avio 500 ICP-OES (inductively coupled plasma optical emission spectrometry, ICP-OES)	1
Thermo Fisher Scientific ICE™ 3500 AAS (Atomic Absorption Spectrometer)	2



Thermo Scientific iCAP™ Q ICP-MS

1

ION Chromatography (IC)

Cation & Anion Analyses

Dionex™ Ion Chromatography ICS-3000

1

Dionex™ Ion Chromatography ICS-5000

1

Storage & Stability

Stability studies, reference standards, master/work cell bank (MCB/WCB)

Biosafe Nitrogen Systems for Cell Bank Storage, Messer Apollo 200, Adur, Chromo-S 100

5

Storage Tank - Liquid Nitrogen

2

Capabilities with devices

Freezers -20°C	12
Freezers -40°C	2
Freezers -60°C	2
Freezers -80°C	19
Incubators	33
Incubator	3
climate chamber 25°C / 60%rel.F.	2
climate chamber 30°C / 75%rel.F.	2
climate chamber 40°C / 75%rel.F.	2
climate cabinet 25°C / 60%rel.F.	2
climate cabinet 25°C / <40%rel.F.	2
climate cabinet 30°C / 75%rel.F.	2
climate cabinet 30°C / 35%rel.F.	1
climate cabinet 30°C / 65%rel.F.	1
climate cabinet 40°C / <25%rel.F.	1
Refrigerator chamber	3
Refrigerators	27