



Instrumentation - DACH (Germany, Austria, Switzerland)

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

Beckman Coulter Vi-CELL™ XR Cell Viability Analyzer	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 Bioanalyzer 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 amebocyte lysate (LAL) or recombinant Factor C (rFC)

Agilent/BioTek ELx808™ Incubating Absorbance plate reader, EndoScanVTM v6 Software (ESV6) for KTA, KCA	4
Lonza PyroWaveTM XM Incubating Fluorescence plate reader, WinKQCITM 6 Software for rFC	1
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 Biolyper® 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)

Air Samplers (different manufacturers)	7
Autoclaves (diverse, Systec, SHP Steriltechnik)	11
Biological Safety Cabinets (BSCs) & Clean Room Benches (Enviroco, BDA, Heraeus, Thermo Fisher Scientific)	35
Clean Room Cabinet, Class A in B (ISO 100 in 10000)	1
Eddy Jets 2 Spiralplater (IUL Instruments)	4
Filtration Systems (Pall Vacuum Filtration Devices & Sterisart ® Universal Pump for Membrane Filtration)	19
Laser Particle Counters (MetOne HHPC 2+, Lighthouse, AeroTrak)	5

Total organic carbon (TOC) Analysis & Conductivity

GE Analytical Instruments Sievers M9 TOC Analyzer - simultaneous testing of TOC and conductivity	2
Shimadzu TOC-VWP Analyzer with Autosampler ASI-V	8
Mettler Toledo S230-USP/EP-Kit Conductivity	4
Thermo Scientific™ Orion 8103BN Semi-Micro pH Electrode /Orion Star Conductivity	3

Bioassay & Microbiology miscellaneous

Microcentrifuges & Centrifuges	23
Miele & MMM Washer-Disinfector	4
VeriPac 455-M5 Vacuum Decay CCIT (Container Closure Integrity Testing)	1



Spectrophotometry / Spectroscopy

Small Molecules & Biologics & Protein Characterization, Particle Characterization

Agilent (UV/Vis) spectrophotometer	3
Bruker Avance I 600 MHz NMR Spectrometer (Hyphenation to Agilent 1100 series HPLC), liquids (non-GMP)	1
Bruker Avance III 400 ssNMR Spectrometer, solid state Nuclear Magnetic Resonance (ssNMR)	1
Bruker MPA I FT-NIR spectrometer Fourier-transform (FT) Near-Infrared (NIR) (non-GMP & GMP)	3
Bruker MultiRAM FT-Raman Spectrometer (Fourier-transform (FT)) (non-GMP)	1
CTech™ SoloVPE® System (UV/Vis)	1
Hach/ Dr. Lange LICO 330 & 690 Colorimeter	2
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-Vis) spectrophotometer	1
Thermo Scientific™ Nicolet™ iS™ 10 FT-IR spectrophotometer (Fourier-transform (FT) infrared (IR))	1
VWR Visible spectrophotometer, V-1200 (UV/Vis)	2

Dissolution

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 Paddle over disk; Type 6 cylinder; Type 7 Reciprocating holder

Agilent Bio-Dis III Reciprocating Cylinder Apparatus (USP 3)	1
ERWEKA Dissolution Tester (DT) 1212 / 1412 / 1420, 12 sample slots (USP 1 & 2)	9
ERWEKA DT 600 / 620 HH, 6 sample slots and 6 rotation cylinder (USP 1 & 2)	9
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)	2
Sotax AT7 Smart + ASD (automated sampling)	5
Sotax AT7 smart + Lambda25 (UV Online System)	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 Characterization

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	0
Joel Neo-Scope JCM6000 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	2



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
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 and 1200 and 1220 HPLC	17
Agilent 1260 Bio-intert HPLC	3
Agilent 1260 Infinity II LC Amino Acid Analyzer DAD & FLD with post-column derivatization of ninhydrin-positive substances	1
Agilent 1260, 1260 Infinity, 1260 infinity II HPLC	37
Agilent 1290 Infinity II UPLC	6
WatersTM 2695 and 2996 HPLC	25
WatersTM Acquity & Acquity H-Class Bio UPLC	24
WatersTM Acquity H-Class UPLC + QDa Mass Spectrometer	3
WatersTM Acquity Premier UPLC	5
WatersTM 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 / derivatization

Pickering Onyx PCX (Post-column derivatisation for amino acid analysis) for Agilent 1260 Infinity II Amino Acid	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 or MS 5978 (GC/MS)	3
Agilent ESI / APCI (atmospheric pressure chemical ionization) Micro TOFQ Mass Spectrometer (LC/MS)	1
Agilent HPLC ESI / APCI MS + SPE NMR Interface (LC/MS to Nuclear Magnetic Resonance device)	1
Agilent SIM 6890N und 6890 (Head space and liquide injector) + MS 5973, G1530A - Low Thermal Mass	4
Agilent SIM 7890A & 7890B (Head space and liquide injector)	6
Agilent Liquid Autosampler (7683 B, G4567A) & Headspace Autosampler (G1888, 7697A)	8
Bruker MALDI Biotyper® sirius one GP (MALDI-TOF/MS), for microbial identification of bacteria, yeast, fungi	1
PerkinElmer® Clarus® GC 680 & 690	3
Shimadzu GC/MS	1
Thermo Scientific™ DFST™ Magnetic Sector GC-HRMS (for persistent organic pollutants (POP) analysis)	2
WatersTM Acquity & H-Class QDA Mass Spectrometer (LC/MS) (Double entry with HPLC)	3



Wet Chemistry & miscellaneous

E.g. Water content by Karl-Fisher titratio, Nitrogen and Proteins determination according to Kjeldahl

Advanced Instruments Osmometer 3320	5
Anton Paar Density meter DMA 4500 M & various density meter	7
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 Visualizer / Automatic TLC Sampler (Thin-Layer Chromatography, TLC)	1
Disintegration & Friability Tester	2
Gas Analyzer Mobile Flame Ionisation Detector (FID)	2
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 Class 1 & 2	21
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 Titriro & 906 Titrando + 803 TI Stand)	2
Metrohm KF-Titrando Karl-Fisher titration system 701/751/890 plus 703/803 TI Stand (volumetric)	13
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	36
Schorpp Gerätetechnik APA II (Point) Melting Point Apparatus	1
Stable Micro Systems TA.XTplusC Texture Analyser	1
Stomacher® Laboratory blenders	5
Suntester	1
Ultrasonic baths	14

Aerosol Characterization

Spray pattern and Particle / Droplet Size Distribution (DSD)

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)	3
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-MSq	1



ION Chromatography (IC)

Cation & Anion Analyses

DionexTM Ion Chromatography ICS-3000	1
DionexTM 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	13
Freezers -40 °C	2
Freezers -60 °C	2
Freezers -80 °C	20
Incubators	41
Incubator	6
climate chamber 25°C / 60%rel.H.	2
climate chamber 30°C / 75%rel.H.	2
climate chamber 40°C / 75%rel.H.	2
climate cabinet 25°C / 60%rel.H.	2
climate cabinet 25°C / <40%rel.H.	2
climate cabinet 30°C / 75%rel.H.	2
climate cabinet 30°C / 35%rel.H.	1
climate cabinet 30°C / 65%rel.H.	1
climate cabinet 40°C / <25%rel.H.	1
Refrigerator chamber	3
Refrigerators	39