



**Quality Chemical Laboratories**  
*Delivering Science, Compliance & Quality into Medicines*

Instruments	Description
<b>Manufacturing and Formulation Services</b>	
Fluid Bed	Vector VFC-3 (Top Spray and Wurster)
High Shear Granulation	Vector GMX Mini (4L and 8L)
Dry Granulation	Vector TFC Micro (Bench top Roller Compactor)
Tablet Press	Piccola B/D Press (8 Station, 4B and 4D) with Software
Film Coater	O'Hara Labcoat M (8.5" pan up to 15" pan)
Milling	Quadro Comil
Blending	V-Shell (2qt up to 16 qt)
Powder Dosing (capsules, powder in bottle)	Accofil LM-14
Manual Encapsulation	Feton, ProFiller (Currently capsule sizes 5 to 0)
Weight Sorter	SADE SP-140
Powder Characterization	Sonic Sifter, Flodex, Loss on Drying
Tablet Characterization	Friability, Hardness, Thickness
Finished Product Packaging	Induction Sealer, Torque Tester
Laminar Flow Hood	R&D Aseptic Processing
Blistering via coldform and thermoform	EZ Blister with Autofeed with Nitrogen Overlay Option

<b>Finished Product Testing and Analytical Development</b>	
HPLC - Refractive Index, Photo Diode Array, Fluorescence, Electrochemical, Variable Wavelength, Evaporative Light Scattering, Charged Aerosol Detection, Size Exclusion	82 Agilent LC systems (1290's, 1260's, 1200's, 1100's)
UPLC	2 Waters H-Class, 2 Waters Acuity I-Class, one with PDA; 2 Agilent 1290's
UV-Vis w/XY Autosampler	Agilent Cary 8454
LC-MS	Agilent 6245 Q-TOF and Agilent 6210 TOF
GC-MS	2 Agilent 7890A with 5975C inert XL MSD (liquid and headspace)
Ion Chromatography - Conductivity, PAD	3 Dionex ICS-5000
Dissolution	26 Agilent 708 DS with 280 DS Mechanical Qualificaton Systems; 4 Auto-sippers 2 Hanson SR-8 Plus Systems
Dissolution for Topicals	Agilent Enhancer Cells
Intrinsic Dissolution	Woods Apparatus
Disintegration	2 - Agilent; 1 - Vankel
Coulometric Karl Fisher	3 - Metrohm cKF ovens with autosamplers
Tablet Hardness Tester	Vanderkamp
Friabilator	Vanguard
XRPD	Smartlab SE with Software
Osmometer	Advanced

<b>GC Lab</b>	
GC - Flame Ionization and Thermal Conductivity Detection	13 Agilent GC Systems (6890 and 7890 A and B)
Static Headspace Autosampler	10 Agilent Static Headspace Autosamplers
GCMS	7890B MS 5977 B and 7890A MS 5975C

<b>Raw Materials and Metals Labs</b>	
ICP-MS	2- (1-Varian-Bruker 820 MS and 1-Bruker 90M)
ICP-OES	2- (1-Varian Liberty Series II and 1-Agilent 710)
AA- Graphite Furnace, Cold Vapor, Flame, Microwave digestion	2-Varian Systems and 1-Agilent 240 FS
UV-VIS Spectrophotometer with Integrating Sphere	Agilent
FTIR	Shimadzu
FTIR - NIR - ATR - Raman	Nicolet iS50 NIR and iS50 FT-IR Spectrometer
Laser Diffraction Particle Size Analyzer	Malvern Mastersizer 2000s; Model 3000 in 3Q2018 (wet & dry dispersion)
Stereo Polarizing Microscope	Menji
DSC	TA Instrumenets Discovery DSC 100 (250 available for R&D Use)
TGA	Hitachi TG/DTA 7200
Elemental Analyzer (CHN)	Perkin Elmer 2400 Series II
Karl Fischer	Metrohm
Coulometric Karl Fischer	Metrohm
Polarimeter	Rudolph
Surface Area Analyzer (BET)	Micromeretics
Refractometer	Thermo
Titroprocessor	Metrohm
pH meters	various
Conductivity meter	various
TOC Analyzer (persulfate/UV)	Tekmar Fusion
Tapped Density Apparatus	2 - Vankel
Airjet Sieve Apparatus	Hosokawa
Ro Tap Sieve shaker	W.S Tyler
Polarograph	Metrohm - used for R & D testing only
Spectrofluorimeter	Shimadzu
Viscometers	Brookfield

TLC	various
HPLC - Post Column Derivatization (Amino Acid Analysis per EP)	2 - Pickering Pinnacle PCX

<b>Microbiology</b>	
Purifier Class II Biosafety Cabinet	3-LabConco
Waterbaths 280 Series	2-Precision
Refrigerators	Various models
Incubators	Various models and temperature ranges
Spectrophotometer	1-Spectronic 20D+ (Thermo)
Colony Counter	Quebec Darkfield Colony Counter (Reichert)
Autoclave	Getinge (2)
Omnispense	Wheaton
Water Activity Meter	Aqua Lab Dewpoint 4tev
Particulate Matter - HIAC	HIAC 9703+ Liquid Particle Counter
Barrier Isolator for Sterility Testing	Getinge
Particulate Matter - Microscopic Particle Count	Nikon Eclipse Ci
Rapid Kinetic Endotoxin	EndoSafe PTS
Image Analyzer for Antibiotic Assays	OMNICON
Microbial Identification System (Vitek 2)	Vitek 2 - Compact

<b>Biotechnology</b>	
Multi-Mode Plate Reader (Absorbance, Fluorescence, Luminescence)	SpectraMax i3x (Molecular Devices)
Automated ELISA System	Ella (Protein Simple)
Capillary Electrophoresis SDS (CE-SDS)	Maurice (Protein Simple)
Capillary Electrophoresis Isoelectric Focusing (iCE-IEF)	Maurice (Protein Simple)
Real-Time PCR System	Applied Biosystems 7500 Fast (Thermo)
Automated DNA Extraction System	KingFisher Flex (Thermo)
Incubating plate shaker	BT Lab Systems
Plate Washer	AquaMax 4000 (Molecular Devices)
Calibrated Densitometer	GS-900 (Bio-Rad)
Gel Doc Imaging System	EZ Doc (Bio-Rad)
TransBlot Turbo Semi-Dry Transfer System (Western Blot)	Bio-Rad
Mini Gel Electrophoresis System (SDS-PAGE)	Bio-Rad, Invitrogen
Agarose Gel Electrophoresis System	Bio-Rad
Calibrated Pipettors (Multichannel, Digital and Single Channel)	Finnpipette (Thermo) and Eppendorf