

## INSTRUMENT FACILITIES AVAILABLE AT THE INDIVIDUAL SAIFs

### Sophisticated Analytical Instrument Facility, CDRI, Lucknow

Sl. No.	Instrument	Make/ Model	Major Specifications/ Accessories available	Type of measurement/analysis available
1.	UV-VIS Spectrometer	Perkin Elmer Lambda 15	Range: 200-850 nm	Usual analysis/studies in the region.
2.	FT-IR Spectrometer	Shimadzu 8201 PC	Range: 400-4000 $\text{cm}^{-1}$ ; Resolution: 1 $\text{cm}^{-1}$	IR Spectra of liquid/solid samples, derivative.
3.	FT-IR Spectrometer	Perkin Elmer Spectrum RX1	Range: 450-4000 $\text{cm}^{-1}$ ; Resolution: 1 $\text{cm}^{-1}$	IR Spectra of liquid/solid samples.
4.	Polarimeter	Rudolf Autopol III	Single wavelength-589 nm; 1.5/7.5/10.0 ml cells available	Analysis of optically active chemicals.
5.	FT-IR Spectrometer		Range: 50-4000 $\text{cm}^{-1}$	Under procurement
6.	FT-NMR Spectrometer	Bruker Avance DRX 300	Operating frequency: 300 MHz; Narrow bore; Variable temperature (-90 <sup>0</sup> C to +80 <sup>0</sup> C) accessory; Gradient accessory	1D Spectra – normal for <sup>1</sup> H, <sup>13</sup> C, <sup>31</sup> P & <sup>19</sup> F, Multinuclear in inverse mode; 2D spectroscopy (Homonuclear J correlation COSY, COSY DQF etc., Dipolar correlation NOESY & ROESY); Inverse spectroscopy-HMQC, HSQC, HMBC etc.; Gradient accelerated spectroscopy; Diffusion ordered spectroscopy (DOSY); Editing spectroscopy DEPT, INEPT; Variable temperature studies.
7.	FT-NMR Spectrometer	Bruker Advance 400	Operating frequency: 400 MHz; 5 mm multinuclear inverse probe head, low and high temperature facility (-90 to +80 <sup>0</sup> C) and HRMAS accessory. Gel NMR measurement as well as resin bound molecules NMR measurement can be carried out.	1D Spectra – Normal for <sup>1</sup> H, <sup>13</sup> C, <sup>31</sup> P, Multinuclear in inverse mode; 2D Spectroscopy (Gradient homonuclear correlation COSY, COSYDQP etc.), Dipolar correlation NOESY & ROESY; Gradient inverse spectroscopy- Adiabatic HSQC, HMBC with double low pass filter etc. Diffusion ordered spectroscopy; Editing spectroscopy DEPT, INEPT, Variable temperature studies.
8.	Mass Spectrometer	Jeol SX 102	Mass range: upto 2500 Da; Resolution: upto 10,000	FAB, MIKE, CID MIKE, Linked scan; Analysis of organic and organometallic compounds.
9.	Mass Spectrometer	Shimadzu QP 2000	Mass range: upto 900 Da; Unit mass resolution; GC	EI, GC-MS.
10.	Mass Spectrometer	Micromass Quattro II	Mass range: upto 4000 Da; Unit mass resolution; HPLC	ESI, APCI, LC-MS, MS/MS; Capability to ionize molecules upto 100 kDa (proteins and other biomolecules); Analysis of organic as well as organometallic compounds.

Sl. No.	Instrument	Make/ Model	Major Specifications/ Accessories available	Type of measurement/analysis available
11.	Mass Spectrometer	Micromass ToF Spec 2E	Mass range: upto 300 kDa; Nitrogen laser- 337 nm	MALDI TOF MS; Capability to ionize molecules upto 100 kDa (peptides, proteins, other biomolecules and polymers).
12.	Scanning Electron Microscope	FEI Philips XL 30	SE detector; GSED detector	3D imaging of biological specimens only.
13.	Transmission Electron Microscope	FEI Philips Tecnai 12	CCD camera; SYS software for online measurement; Cryo Gatan stage; EDAX	High resolution imaging of biological samples only; Immuno electron microscopy.
14.	GLC	Perkin Elmer Autosystem XL	Sample requirement: 2-5 mg	Nature of compound, solubility, melting point/boiling point, column (if known).
15.	CHNSO Elemental Analyzer	Elementar Vario EL III	Accuracy: $\pm 5\%$	C, H, N, S, O estimation of solid and liquid samples.
16.	CHN Elemental Analyser	Carlo Erba 1108	Accuracy: $\pm 5\%$	C, H, N estimations of solid and liquid samples.
17.	Liquid Nitrogen Plant	Philips MNP 9/01	9 lts./hr.	Liquid nitrogen for R&D work.