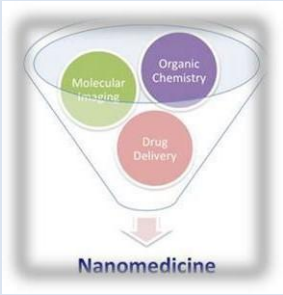
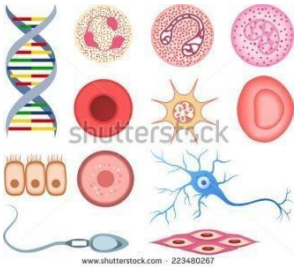
Facilities

Specialized Labs:

Nanomedicine Research Lab	
Incharge	**Dr. Gaurav Goyal**
Overview 	This Centre has been recently established within Pharmaceutics specialization. It comprises of two subcell(s) which house sophisticated instrumentation: ELISA plate reader, probe sonicator, motic image integrator and research microscope, auto sampling dissolution apparatus, 3K refrigerated supercentrifuge, southern blotter, northern blotter, vertical laminar bench, sample fractionators, lyophilizer, low temperature orbital shaker incubator, Shimadzu spectrophotometer, vacuum multiple hole assembly, probe pH analyzer and rotary flash evaporator. The subcell within instrumentation cell of the lab is a designated area for protein and DNA handling in particulate free aseptic environment with appropriate air handling system. The main lab offer(s) air-conditioned working area with most sophisticated quality lab wares and fully dust free lab with Data Integrating and Pooling device operated through Internet leased line 1 Mbps with Wi-Fi system.

Pilot Plant Manufacturing Facilities - Injectable and Solid Dosage Forms	
Incharge	**Mr. Tanmay M**
Overview 	The latest laboratories as per GLP standard are available for quality research. Industrial pharmacy manufacturing unit-1 is constructed as per FDA recommendations and GMP guidelines for parenteral and non-parenteral formulations. It not only gives details on layout of a parenteral area but at the same time gives an idea about various internal sections and equipment needed therein. Similarly, unit II is an ideal replica of manufacturing unit as per GMP guidelines for solids, semisolids and liquids. In-house Industrial Training.

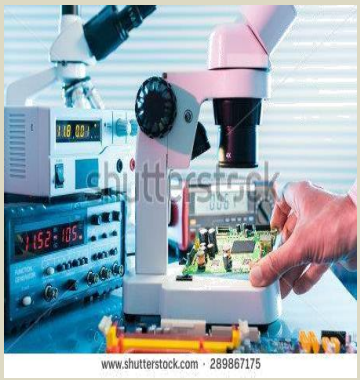
Molecular Modeling & Pharmacoinformatics Lab	
Incharge	**Mr. Rohit Bhatia**
Overview 	A Molecular modeling and Pharmocoinformatics lab is established in the department of Pharmaceutical Chemistry to fulfill the necessity of modern drug discovery research. The objective of this lab is to make familiar the students to various drug design techniques. The lab is equipped with various drug design software to conduct the Pharmacophore modeling, Docking, Homology modeling and Virtual screening studies.

Animal Cell Culture Lab	
Incharge	**Dr. Shamsher Singh**
Overview 	Realizing the importance of *in vitro* studies, concerted efforts have been made to develop an Animal Tissue Culture Laboratory at ISF, Moga with a focus of research on the application of new drug entities including nanoparticles for the improvement of human health. The Animal tissue culture lab has a modern infra-structural facilities, well equipped with CO2 Incubator, Bio-safety Cabinet, Elisa plate Reader, BOD Incubator, Deep Freezer, Inverted Fluorescence Microscope with camera, Cryo Cans. We have initiated toxicological studies at ISF, Moga. During this, toxicity of new chemical entities, mechanisms of toxicity/ cell death and studies on the uptake in cells are undertaken. In addition, we are also assessing the toxicity of various kinds of nanoparticles (polymeric and metal based nanoparticles etc.). The availability of such in vitro toxicity models in the discovery and development process of pharmaceuticals will reduce time and cost required to develop data needed to initiate Phase I clinical trials in human volunteers. We invite research institutions and laboratories and other organizations in the areas relevant to the objectives of the facility for collaboration.

Plant Tissue Culture Lab

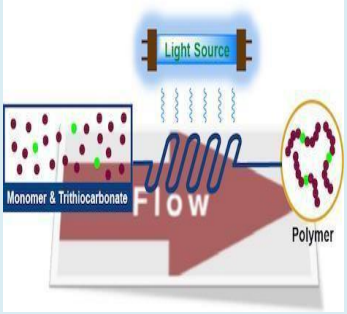
Incharge	**Dr. Alok Sharma**
Overview 	This lab has been established at ISF in the department of Pharmacognosy with a view to develop plant cell lines for the production of secondary metabolites. In Plant Tissue Culture technique small portion of the plant tissue, known as meristmatic tissue used for the production of biomass. In this lab all growth requirements of the plant tissue like humidity, light, temp, nutrition of requirement etc are supplied artificially. Which enhances the production of biomass as well as secondary metabolites. Plant Tissue Culture Lab comprises of three different sections; Preparation area, Aseptic area and Incubation area. The lab is well equipped with modern equipments of international standard viz. CO2 incubator (NBS, USA), vertical laminar air flow, BOD incubator, Autoclave, refrigerated centrifuge (Remi, India), digital pH meter, electronic balance, Hot air oven etc.

Instrumentation Lab

Incharge	**Dr. Aarti**
Overview 	Some available highly sophisticated instruments include GC, AAS, Water's HPLC binary system, FTIR, a range of Shimadzu spectrophotometers; Auto sampler- Dissolution test apparatus; Microwave organic synthesizer; Vacuum flash evaporators; lyophilizer; Probe and bath sonicators; Sigma refrigerated super centrifuges; Vertical and Horizontal laminar benches, ELISA Plate Reader, Micro Tissue Homogenizer, Auto-analyzer; Plethysmometer; Biopac system, Noninvasive Electrocardiogram; HPTLC, Langendorff apparatus; Microtome; and Physiograph etc.

Microbial cell Culture Lab

Incharge	**Mr. Hemraj**
Overview 	Current research activities in the lab: study the structure, form, behavior, growth and distribution of microbes as well as their relationships with other organisms.Our lab facilities include the analysis of fungi (mold), bacteria (*Legionella*,*E. coli*, *Salmonella*, *Listeria*, etc), mycotoxins, Antimicrobial activity, endotoxins, allergens, pollen and particulates in air, swab, water, soil, bulk, dust, wipe, food and consumer products.

PolymerChemistry Lab	
Incharge	**Dr. Vikramdeep Monga**
Overview 	The purpose of the Polymer Chemistry Lab is to provide research platform for post graduate students of Pharmaceutical Chemistry branch. It mainly involves the synthesis of polymer drug conjugates in which the bioactive agent is combined covalently with polymer to achieve the efficient delivery of bioactive agents in the required or specific period of time. The polymer based drug conjugates also help in lowering undesirable toxic effects by reducing interaction with non-targeting tissues. **Facilities**: **Gel Permeation Chromatography** (To characterize synthesized polymer drug conjugates), **Chromatotron** (To purify polymer drug conjugates), **Rotary evaporator** (For removal of solvents), **UV chamber** (To visualize TLC plates), **Fuming Hood**, **Hot Air Oven.**

Green Chemistry Lab (LOMIGOS Lab)	
Incharge	**Dr. Vikramdeep Monga**
Overview 	Laboratory of microwave induced green organic synthesis (LOMIGOS) has been established for the purpose of microwave-assisted synthesis of organic compounds in a fraction of the time as compared to traditional conductive heating methods. The microwave reactor (CEM SP Discover) permits experiments to be performed in both closed and open vessels, and also allows reactions to be run under various conditions: fixed power, cycles, maximum temperature/pressure etc. The reactor also keeps track of the parameters (temperature, pressure, time, etc.) used during a reaction and these parameters can be extracted with a USB drive. Finally, the microwave can be operated by a computer instead of manually, using the Synergy software. Microwave-Assisted synthesis provides following advantages: • Faster reaction times/rapid optimization: Microwave energy enhances organic reactions by reducing chemical reaction times—in the best cases, hours are reduced to minutes. Or, put another way, the reaction rate of microwave-induced organic reactions is 10- to 1000-fold faster than conventional synthesis. • Higher product yields: Rapid heating to the target temperature inhibits the formation of byproducts, leading to greater purity and yield increases of 10% to 30 • Energy-efficient heating.