Intravital **Microscope:**

This setup allows us to visualize, in anesthetized animals in vivo, the interaction of leukocytes with the blood vessel wall and the crossing of the blood-vessel interface (emigration). This complex interaction is crucial in many diseases with an inflammatory component, for example during the acute phase in asthma and the chronic progression observed in atherosclerosis. Typically, the microcirculation of a specific bed is exposed under microscope and the interactions of leukocytes with the endothelial cells lining the blood vessel can be observed, recorded and quantitated. Parameters that are quantifiable are rolling speed or rolling influx of circulating leukocytes, leukocyte number per square mm and emigrated leukocytes, together elucidating the specific step which a chemical may target and thus influence critical processes of inflammation.

Myographs:

Altered vascular tone is frequently a crucial denominator or a severely complicating factor of the vascular dysfunction that characterizes many major diseases, such as hypertension, atherosclerosis, sepsis, Alzheimer's, myocardial infarction and diabetic arteriopathy. The tone of the vessel is essentially determined in tandem by the endothelium and the smooth muscle cells. A direct measurement of how various hormones and chemicals influence vessel tone is therefore vital for understanding how these will impact vascular contractility (tone) and influence the progress of a particular disease. Myographs, for a few decades now, have been successfully used to: a) test the contractile activity of hormones, neurotransmitters and chemicals on the arterial wall, with added advantage that newer generation myographs allow the use of both larger calibre as well as smaller, resistance vessels, b) elucidate the molecular mechanism of action of many compounds, through chemical manipulation by use of agonists, antagonists and signalling pathway modulators, and c) functionally screen compounds, if their target is expressed in the vessel wall. It will therefore be an important addition to our arsenal in screening for compounds with effects on the cardiovascular system. Furthermore, it will allow comparison of vascular reactivity in vessels from wild-type and genetically manipulated (knock-out or transgenic) mice, which carry altered gene expression in the vasculature. Finally, this versatile tool can be used to measure reactivity in tracheal preparations, thus expanding its utility in investigations in pulmonary disease models.