

TOXICOLOGY

IN DRUG DISCOVERY AND DEVELOPMENT:

BIOMARKERS and Model organisms

MILLIPORE
SIGMA

Discovery phase toxicity testing tools:

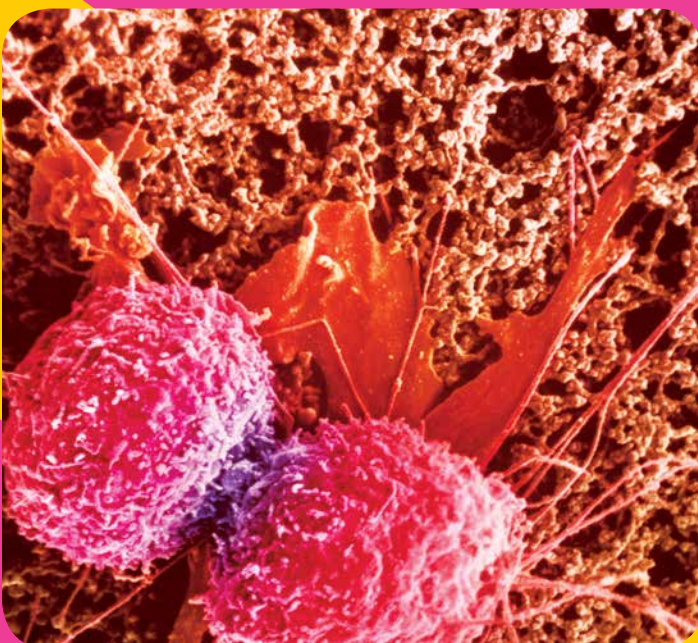
- Antibodies and RNA probes
- Small molecule inhibitors and activators
- Flow cytometry and imaging flow cytometry instrumentation
- Cell-based assays
- Cell culture (traditional and microfluidic)
- Multiwell PAMPA plates and filter plates for 3D cellular models of toxicity



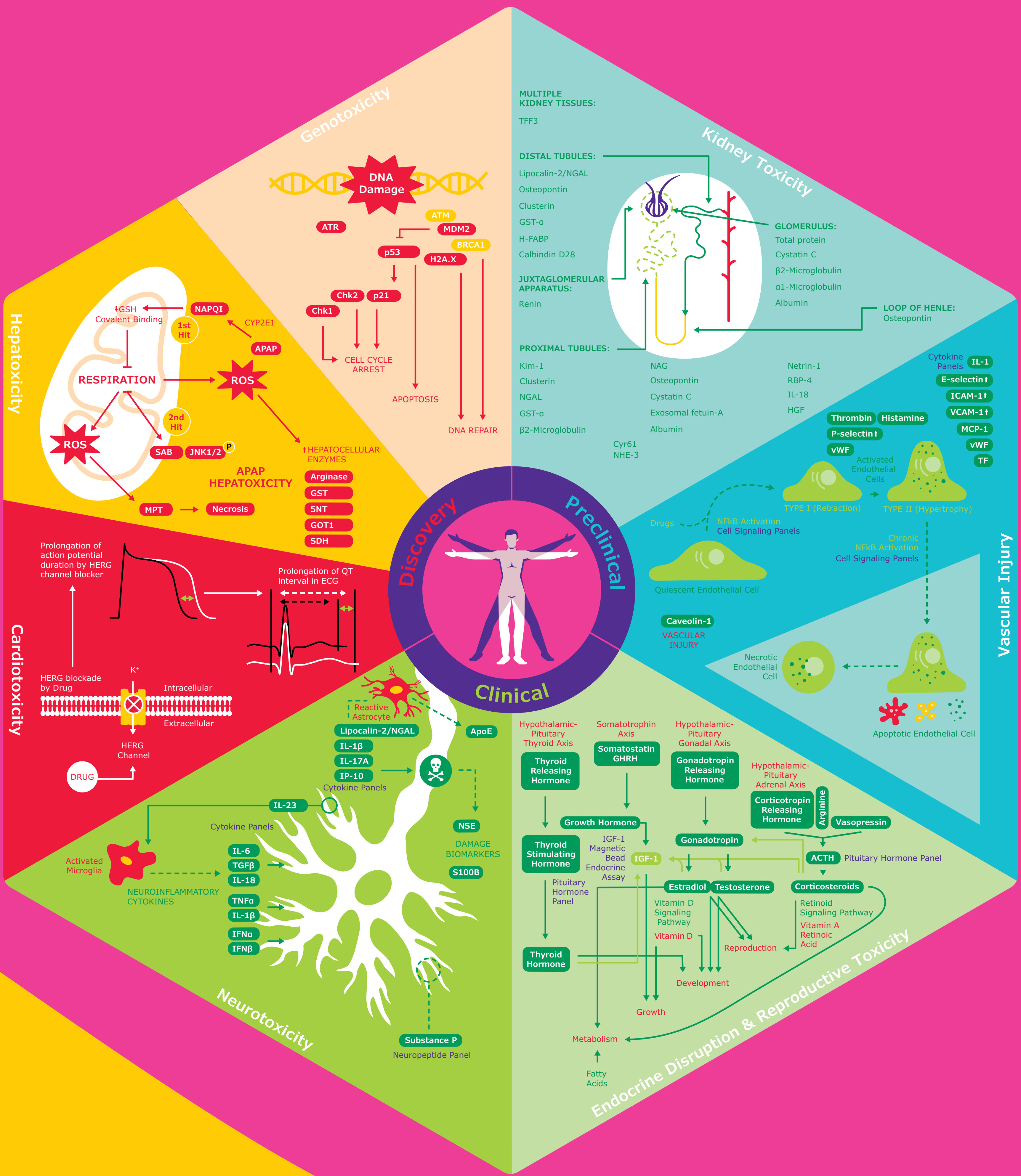
Bacteria



Yeast



Animal Cells



Preclinical & clinical toxicity testing tools:

- Multiplexed toxicity biomarker assays based on Luminex® technology
- GyroMark™ toxicity assays for the Gyrolab™ platform
- Extracellular vesicle enrichment and analysis tools
- Urine/CSF sample concentration devices



MILLIPLEX® MAP multiplexed toxicity biomarker assay panels

Canine Kidney Toxicity Expanded Panel 1 (Cat. No. CKT1MAG-97K)
Canine Kidney Toxicity Panel 2 (Cat. No. CKT2MAG-97K)
Human Kidney Injury Panel 1 (Cat. No. HKI1MAG-99K)
Human Kidney Injury Panel 2 (Cat. No. HKI2MAG-99K)
Human Kidney Injury Panel 3 (Cat. No. HKI3MAG-99K)
Human Kidney Injury Panel 4 (Cat. No. HKI4MAG-99K)
Human Kidney Injury Panel 5 (Cat. No. HKI5MAG-99K)
Human Kidney Injury Panel 6 (Cat. No. HKI6MAG-99K)
Mouse Kidney Injury Panel 1 (Cat. No. MKI1MAG-94K)
Mouse Kidney Injury Panel 2 (Cat. No. MKI2MAG-94K)
Rat Kidney Toxicity Panel 1 (Cat. No. RKT1MAG-37K)
Rat Kidney Toxicity Panel 2 (Cat. No. RKT2MAG-37K)
Human Liver Injury Panel (Cat. No. HLINIMAG-75K)
Rat Liver Injury Panel (Cat. No. RL1MAG-92K)
Rat Liver Injury Panel (Cat. No. RL1MAG-92K)
Rat Vascular Injury Panel 1 (Cat. No. RV1MAG-26K)
Rat Vascular Injury Panel 2 (Cat. No. RV2MAG-26K)
Rat Vascular Injury Panel 3 (Cat. No. RV3MAG-26K)
DNA Damage/Genotoxicity (Cat. No. 48-621MAG)
Human Neurodegenerative Disease Panel 1 (Cat. No. HNDG1MAG-36K)
Human Neurodegenerative Disease Panel 2 (Cat. No. HNDG2MAG-36K)
Human Neurodegenerative Disease Panel 3 (Cat. No. HNDG3MAG-36K)
Human Neurodegenerative Disease Panel 4 (Cat. No. HNDG4MAG-36K)
Human Neurological Disorders Panel 3 (Cat. No. HND3MAG-39K)
Multi-species Steroid/Thyroid Hormone (Cat. No. SITHMAG-21K)
Human Cardiovascular Disease Panel 4 (Cat. No. HCV4MAG-67K)
Rat Cardiac Injury Panel 1 (Cat. No. RCI1MAG-87K)

Preclinical toxicology: How much test material do I need?

Model	Mouse	Rat	Porcine (mini pig)	Canine (beagle)
Assumptions	30 g body wt	250 g body wt	7.5 kg body wt	9 kg body wt
	10/sex/group	10/sex/group	4/sex/group	4/sex/group
	4 groups	4 groups	4 groups	4 groups
	25, 250 and 500 mg/kg/day	25, 250 and 500 mg/kg/day	25, 250 and 500 mg/kg/day	25, 250 and 500 mg/kg/day
	28-day treatment	28-day treatment	28-day treatment	28-day treatment
	+20% extra	+20% extra	+20% extra	+20% extra
Test material required	~62 g drug	~520 g drug	~3120 g drug	~7500 g drug

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