

Supplementary Table 2. Summary table for the characterization of gene and drug members of unified conserved drug-induced (CODI) modules, CODI-associated modules of rat liver and selected cell line-specific modules linked to certain MOA. Functional enrichment of genes (biological process) and MOA enrichment of drugs were labeled in green if identified in the automated annotation process. For drug annotation, manually curated drug information was additionally provided to characterize drug action that is found to be prominent across cell lines (colored in orange). Additionally, we checked the consistency of gene and drug annotations in terms of their biological relevance with labels; in green for previously reported associations in literature, in yellow for less obvious cases with poorly characterized drug mechanism of action and in grey for previously unreported associations.

	Functional enrichment of genes (BP: biological process)	Most prominent drug mechanism of action (MOA)	Literature support for association between BP and MOA
CODIM1	BP: cell cycle process, M phase	cell cycle blockers	(Crawford & Piwnicka-Worms, 2001; Cho <i>et al</i> , 2001; Whitfield <i>et al</i> , 2002)
CODIM2	BP: Sterol biosynthetic process, cholesterol metabolic process	Psycholeptics	(Fernø <i>et al</i> , 2005; Kristiana <i>et al</i> , 2010)
CODIM3	BP: citrullination, nucleosome assembly, chromatin assembly,	Protein synthesis inhibitors	
CODIM4	BP: response to wounding, defense/inflammatory response	Corticosteroids	(Barnes, 2006)
CODIM5	BP: response to unfolded protein and protein stimulus	Heat shock protein inhibitors	(Marcu <i>et al</i> , 2002)
CODIM6	BP: Unknown ; enrichment of LIM domain	Histone deacetylase inhibitors	
CODIM7	BP: Pyrimidine metabolism, (m)RNA processing	Flavonoids	(Nose, 1984; Kanakis <i>et al</i> , 2006, 2007)
CODIM8	BP: inner ear development, sensory organ development, cell adhesion	Unknown	
CODIM9	BP: protein folding; keywords: transcriptional regulation	Unknown	
CODIM10	BP: Unknown; enrichment WD40 repeat	Unknown	
CODIM11	BP: intracellular transport, cellular protein localization	Unknown	
CODIM12	BP: Unknown	Unknown	
CODIM13	BP: Unknown; enrichment metallothionein, chelation	Serpine1	
CODIM14	BP: intracellular protein transport, protein localization	Unknown	

CODIM15	BP: L-serine metabolic process, Glycine, serine and threonine metabolism, Aminoacyl-tRNA biosynthesis	SLC6A2	
CODIM16	BP: ncRNA metabolic process	HRH1	
CODIM17	BP: Unknown; enrichment WD40 repeat	NA+/K+ pump inhibitors	
CODIM18	BP: Unknown; enrichment for transmembrane region and signal peptide	Unknown	
CODIM19	BP: Unknown	Unknown	
CODIM20	BP: vesicle-mediated transport	Unknown	
CODIM21	BP: defense/inflammatory response, cell adhesion	Unknown	
CODIM22	BP: Unknown; enrichment for glycoprotein, signal peptide	Unknown	
CODIM23	BP: Unknown; enrichment Krueppel-associated box domain	Unknown	
Cell line specific modules linked to certain MOA			
MCF7-9	BP: G-protein coupled receptor protein signaling pathway, epithelium development	Estrogen receptor agonist/antagonist	
PC3-3	BP: response to protein stimulus, unfolded protein and organic substance	Histamine receptor H1 antagonist	
PC3-9	BP: Unknown	Peroxisome proliferator-activated receptor activator	
PC3-11	BP: wound healing; enrichment, complement and coagulation cascades	β -2 adrenergic receptor agonist	
HL60-17	BP: regulation of lymphocyte activation	β -2 adrenergic receptor agonist	
Modules of rat liver associated with CODIM			
Rat Liver-2	BP: response to bacterium, wounding and inflammatory, defense response	Non-steroidal anti-inflammatory drug	
Rat Liver-7	BP: Unknown	Corticosteroids	
Rat Liver-12	BP: lipid, sterol biosynthetic process, cholesterol metabolic process	Statins	
Rat Liver-22	BP: chemotaxis, leukocyte migration, migration, immune response	Unknown	
Rat Liver-23	BP: positive regulation of macromolecule biosynthetic process, regulation of transcription	Unknown	
Rat Liver-36	BP: cell cycle process, M phase	Unknown	