

## Organic Functional Groups Found in Drugs

<u>General Structure*</u>	<u>Name (functional group)</u>	<u>Acid or Base</u>
R-CO <sub>2</sub> H	carboxylic acid (carboxyl)	Acid
R-CO <sub>2</sub> <sup>-</sup>	carboxylate ion (carboxylate)	Base
R-NH <sub>2</sub> , RR'NH, RR'R''N	1°, 2°, 3° amine (amino)	Base
R-CH=N-R'	imine (imino)	Base
R-CH=NH <sup>+</sup> -R'	iminium ion (immino)	Acid
R-NH <sub>3</sub> <sup>+</sup> (also 2° and 3°)	ammonium ion (ammonium)	Acid
R-OH	alcohol or phenol (hydroxyl)	Acid
R-O-R'	ether	Neutral
R-SH	thiol, mercaptan (sulfhydryl)	Acid
R-S-R'	thioether	Neutral
R-CN	nitrile (cyano)	Neutral
R-X (X = F, Cl, Br, I)	halide (fluoro, chloro, bromo, iodo)	Neutral
R-CO <sub>2</sub> R'	ester	Neutral
R-CONH <sub>2</sub>	amide (amido)	Neutral
R-CO-NH-CO-R'	imide	Acid
R-SO <sub>2</sub> NH-R'	sulfonamide (sulfonamido)	Acid
R-CO-CHR'-CO-R''	β-diketone**	Acid
R-CO-CR'=C(R'')-OH	vinyllogous carboxylic acid**	Acid
R-CF <sub>3</sub>	trifluoromethyl***	Neutral
R-NO <sub>2</sub>	nitro***	Neutral

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\* R, R', and R'' are used to denote an alkyl or an aryl (aromatic) group.

\*\* strong carbon acid

\*\*\* strongly electron withdrawing