

Supplemental Table 1. Key Comparative Concepts in Pharmacology and Tibetan *Menjor* (online only)

Conceptions of Potency, Purity, and Synergy-by-Design: Toward developing a Sowa Rigpa medical theory-based approach to pharmaceutical research. (Tidwell and Nettles, 2019)

Concept	Pharmacology (pharmakon ‘drug,’ -ology ‘to study’) = the field of knowledge concerning the uses, effects, and modes of action of drug	Tibetan Menjor Rigpa (men ‘medicine,’ jor ‘to combine,’ rigpa ‘knowledge field’) = the field of knowledge concerned with methods of preparing, processing, and combining substances to produce medicine
Assay (ngos ‘dzin rtags)	Investigative (analytic) procedure for qualitatively assessing or quantitatively measuring the condition of a patient or the presence, amount, or functional activity of a medicinal entity (analyte)	Investigative (analytic/direct perceptual) technique for qualitatively assessing or quantitatively measuring the condition of a patient or presence, amount, or functional activity of a medicinal substance
Element (‘byung ba)	Smallest unit of matter having specific physical properties—represented by one of over 100 substances	One of five dynamic principles that relate a substance’s form to its function and ability to combine with other substances
Atom*	The smallest physical form of an element	_____
Dültren* (rdul phran)	_____	Momentary, infinitesimally small partless particles that make up matter (<i>rdzas</i>). Exhibit properties dependent on context, not as inherent properties of the particles themselves
Molecule (‘dus rdul)	A chemical combination of two or more atoms	Collection of two or more <i>dultren</i>
Compound (‘dus rdzas)	Material formed from multiple types of atoms or molecules	Entity formed by two or more <i>dzé</i>
Substance (<i>rdzas</i>)	A particular kind of material with uniform properties	Material or entity with particular properties and form
<i>Chemical property</i>	A substance’s properties that can be measured or becomes evident during, or after, a chemical reaction. Property classes include flammability, toxicity, acidity/basicity, and solubility, which can be hydrophilic (water-loving) or lipophilic (fat-loving) or a partition between the two (a logarithmic ratio known as LogP)	_____
<i>Dzé property</i> (<i>rdzas kyi khyad chos</i>)	_____	Specific characteristics of a substance defined by its constituent elemental dynamics and their respective positive, negative, and neutral affinities. Property classes include taste, potency, post-digestive taste, and quality. Taste examples include: sweet, sour, salty, bitter, pungent, and astringent. Quality examples include heavy, dense, cooling, heating, sharp, moist (moistening), and oily (oiling).

Concept	Pharmacology	Tibetan Menjor Rigpa
Potency (<i>phan nus, nus pa</i>)	Measure of drug activity in terms of amount of substance required to produce an effect of given intensity. Typically based on dose-response curves in cell-based assays or animal testing.	Ability for a formula or substance to enable beneficial function, result, power, strength, or activity. Based upon observations in human populations.
		<i>Note: potency of formula is usually described as pennü (phan nus), and the eight classic potency characteristics delineated for each substance as nüpa (nus pa)</i>
Purity (<i>dug 'don pa, sbyang pa, dag pa</i>)	Degree to which a substance is made of only one type of element or only one type of compound	Degree to which a substance is removed of its toxicity, harmful components, and 'rough' parts such that it is able to impart its full potency in a specific patient
Toxicity (<i>dug ldan</i>)	Degree to which a substance can cause harm to a living thing, which can also be selective	Degree to which a substance is not metabolized by the body. Poor metabolism results in disruptions to pathways and organ functions causing both general/systemic and selective/specific harm
Activity (<i>las</i>)	Behavior of a compound	Functional behavior based on five dynamics, from which subtype activities of taste, post-digestive taste, potency and quality are derived
Affinity (<i>'byung ba mthun pa</i>)	Attractive force between substances or particles that causes them to enter into and remain in physical combination; how well a drug can bind to a receptor	Degree to which two or more dynamics have complementary, productive or synergistic interactions (<i>mthun pa</i>). Note: antagonistic, adverse, and destructive interactions are conversely characterized (<i>'byung ba mi mthun</i>)
Metabolism (<i>'ju tshul</i>)	Degree, form, and rate to which a substance can be incorporated, transformed, and eliminated from cells and tissue types of a body. Also referred to as pharmacokinetics / pharmacodynamics (PK/PD)	Degree to which nutritional essence and waste products of a substance can be separated and transferred to, incorporated into, and expelled from appropriate areas of the body
	<i>Note: key concept for determining toxicity of a substance. The better a substance can be incorporated into cells and cause dysfunction, the more toxic the substance is considered</i>	<i>Note: the more toxic a substance, the less it can be properly separated, consequently disrupting functions and pathways in the body causing harm</i>
Synergy**	Activity of the whole is greater than sum of individual parts	_____
Düljong** (<i>'dul sbyong</i>)	_____	Complementary integration and heightening of activities in a compound to create potent, 'smooth' effect greater than any individual component parts. Substances are prepared through one or more of 18 processes that develop the medicinal qualities of a substance, detoxify (<i>dug 'don pa</i>), 'tame' (<i>'dul ba</i>) by eliminating harmful components, and 'purify' (<i>sbyong ba</i>) by retaining and imbuing medicinally-potent components and qualities of a substance
Efficacy (<i>phan nus 'grub mi grub</i>)	Capacity for beneficial change (or therapeutic effect) of a given intervention	Degree to which proper potency is imparted to patient without undesired effects of toxicity

Concept	Pharmacology	Tibetan Menjor Rigpa
Efficiency (<i>phan nus 'don pa'i mthu stobs</i>)	Degree of effect per unit of time, energy, cost, etc	Capacity for formula to produce desired effect over predicted time frame. Different formula types require different activity speeds
Resistance (<i>mi 'phrod pa</i>)	Degree to which efficacy is reduced for a given drug	Inability of body to metabolically access or implement medicinal effect of formula due to presence of toxicity (<i>dug</i>)
Safety (<i>nyen ka yod med</i>)	Standardized process that assesses degree to which compound is non-toxic to specific cells, then animal models, and then human patient populations	Degree to which formula has been 'detoxified,' 'tamed,' and 'smoothed' for efficacy in human patient populations
Pharmacophore	Spatial arrangement of atomic chemical properties responsible for a drug's action—beneficial or harmful	—————
<p><i>*Note: Although dültren and atom have consonance, as well as dültren and various basic particles recognized by contemporary particle physicists, we choose to leave these concepts uncorrelated to emphasize their comparative complexity and to focus on the more productive conceptual link between elemental dynamics and chemical properties.</i></p> <p><i>**Note: Since potency of any substance can be heightened through multiplying effects of combined dynamics-synergy (activity of the whole is greater than the sum of its parts) is a design element of Menjor Rigpa processing methods.</i></p>		