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**3R's principle:** The 3Rs stand for Replacement, Reduction, Refinement. This is a strategy that is intended to reduce the number of animals used in experiments and to reduce animal experimentation overall; it also aims to mitigate the suffering and distress caused to the animals.

**a priori:** The formulation of an hypothesis based on theoretical considerations before undertaking an investigation or experiment.

**Absolute risk (AR):** is the probability or chance of an event. It is usually used for the number of events (such as a disease) that occurred in a group, divided by the number of people in that group.

**Absorption (biological):** Process of active or passive transport of a substance into an organism, in humans this is usually through the lungs, gastrointestinal tract or skin

**Acceptable daily intake (ADI):** Estimate of the amount of a substance in food or drink, expressed on a bodyweight basis (e.g. mg/kg bodyweight), that can be ingested daily over a lifetime by humans without appreciable health risk.

**Acceptable risk:** Probability of suffering disease or injury which is considered to be sufficiently small to be societally acceptable.

**Acute:** Short term, in relation to exposure or effect.

**Acute reference dose (ARfD):** Estimate of the amount of a substance in food or drink, expressed on a body weight basis that can be ingested in a period of 24 hours or less without appreciable health risk.

**Acute toxicity:** Adverse effects that occur over a short period of time (up to 14 days) immediately following a single exposure.

**Adaptive response:** The process whereby a cell or organism responds to a xenobiotic so that the cell or organism will survive in the new environment that contains the xenobiotic without impairment of function.

**Adduct:** A chemical grouping which is covalently bound (see covalent binding) to a large molecule such as DNA (qv) or protein.

**Adductome:** The totality of the adduct profile, usually to DNA, in an individual.

**Adenoma:** A benign neoplasm arising from a gland forming epithelial tissue such as colon, stomach or respiratory tract.

**Adverse Outcome Pathway (AOP):** A sequence of key events linking a molecular initiating event (MIE) to an adverse outcome through different levels of biological organisation. AOPs span multiple layers of biological organisation.

**Adverse response:** Change in morphology, physiology, biochemistry, growth, development or lifespan of an organism or its progeny which results in impairment of functional capacity or impairment of capacity to compensate for additional stress or increase in susceptibility to the harmful effects of other environmental influences.

**Aetiology:** study of causation or origination

**Aggregate exposure:** exposure to one chemical by all routes from all sources.

**Ah receptor:** The Ah (Aromatic hydrocarbon) receptor protein is a member of a group of regulatory sensor molecules. The identity of the natural endogenous chemicals which regulate the Ah receptor is unknown. Binding to the Ah receptor is an integral part of the toxicological mechanism of a range of chemicals, such as chlorinated dibenzodioxins and polychlorinated biphenyls.

**Alkylating agents:** Chemicals which leave an alkyl group covalently bound to biologically important molecules such as proteins and nucleic acids (see adduct). Many alkylating agents are mutagenic, carcinogenic and immunosuppressive.

**Allele:** Alternative form of a gene within the population.

**Allergen:** Substance capable of stimulating an allergic reaction.

**Allergy:** The adverse health effects that may result from the stimulation of a specific immune response.

**Allergic reaction:** an adverse reaction elicited by exposure to a previously sensitised individual to the relevant antigen.

**Ames test:** Also known as the bacterial reverse mutation assay. In vitro assay for bacterial gene mutations using strains of *Salmonella typhimurium* and *Escherichia*

coli.

**Androgen:** The generic term for any natural or synthetic compound that can interact with and activate the androgen receptor. In mammals, androgens (for example, androstenedione and testosterone) are synthesised by the adrenal glands and the testes and promote development and maintenance of male secondary sexual characteristics.

**Aneugen/aneugenic:** (An agent) Inducing aneuploidy.

**Aneuploidy:** The circumstances in which the total number of chromosomes within a cell is not an exact multiple of the normal haploid (see 'polyploidy') number. Chromosomes may be lost or gained during cell division.

**Apoptosis:** A form of programmed, active cell death resulting in fragmentation of the cell into membrane-bound fragments (apoptotic bodies). These are usually rapidly removed in vivo by engulfment by phagocytic cells. Apoptosis occurs normally during development but can be triggered abnormally by toxic stimuli.

**As low as is reasonably achievable/ As low as is reasonably practicable (ALARA/ALARP):** A risk management approach under which exposure to a substance or mixture is reduced to the lowest level that it is deemed to be reasonably achievable or practicable in particular circumstances or by available technological solutions.