P

Pharmacodynamics: The process of interaction of drugs with target sites and the subsequent reactions leading to the desired biological effects (see toxicodynamics).

Pharmacokinetics: Description of the fate of drugs in the body, including a mathematical account of their absorption, distribution, metabolism and excretion (see toxicokinetics).

Pharmacogenomics: The science of understanding the correlation between an individual patient's genetic make-up (genotype) and their response to drug treatment. Some drugs work well in some patient populations and not as well in others. Studying the genetic basis of patient response to therapeutics allows drug developers to design therapeutic treatments more effectively.

Phenotype: The observable physical, biochemical and physiological characteristics of a cell, tissue, organ or individual, as determined by its genotype and the environment in which it develops.

Phenotypic change: A change in the observable physical or biochemical characteristics of an organism, as determined by both genetic makeup and environmental influences.

Physiologically based pharmacokinetic (PBPK) model: A mathematical model which is used to predict the absorption, distribution, metabolism and excretion of a chemical substance in humans.

Phytoestrogen: Any plant substance or metabolite that induces biological responses in vertebrates and can mimic or modulate the actions of endogenous estrogens usually by binding to estrogen receptors.

Pig-A gene mutation assay: An assay which utilises the Pig-A gene which codes for one subunit of a glycosylphosphatidyl inositol anchor protein. Loss of function arising from Pig-A mutations can readily be assessed using straightforward immunochemistry and flow cytometric methods, thus making it useful to measure gene mutations induced by chemicals or radiation.

Plasmid: A structure composed of DNA that is separate from the cell's genome (qv). In bacteria, plasmids confer a variety of traits and can be exchanged between individuals- even those of different species. Plasmids can be manipulated in the laboratory to deliver specific genetic sequences into a cell.

Plasticiser: A substance which increases the flexibility of certain plastics.

Point of departure: a dose associated with a defined level of effect, which can be determined empirically or by modelling dose-response data from experimental studies, from which a health-based guidance value can be established or which can be used for a margin of exposure assessment. Examples include a BMDL, NOAEL or LOAEL.

Polymer: A very large molecule comprising a chain of many similar or identical molecular sub units (monomers) joined together (polymerised). An example is the polymer glycogen, formed from linked molecules of the monomer glucose.

Polymerase chain reaction (PCR): A method for creating millions of copies of a particular segment of DNA. PCR can be used to amplify the amount of a particular DNA sequence until there are enough copies available to be detected.

Polymorphism: (see genetic polymorphism)

32P postlabelling: A sensitive experimental method designed to measure low levels of DNA adducts induced by chemical treatment.

Prevalence: The number of cases of a disease that are present in a population at a given time.

Primer: Short pre-existing polynucleotide chain to which new deoxyribonucleotides can be added by DNA polymerase.

Primordial germ cells: Highly specialised cells that are precursors of gametes, which, following meiosis, develop as haploid sperm and eggs that generate a new organism upon fertilisation.

Proteomics: The determination of the function of all of the proteins encoded by the organism's entire genome.

Proto-oncogene: One of a group of normal genes which are concerned with the control of cellular proliferation and differentiation. They can be activated in various ways to forms (oncogenes) which are closely associated with one or more steps in carcinogenesis. Activating agents include chemicals and viruses. The process of proto-oncogene activation is thought to play an important part at

several stages in the development of tumours.