market of biotechnology including the incentives of the capital providers, who demand a required return of investment. The justification of the drug price can be based on the Discounted Cash Flow method.

We propose an alternative policy approach for the evaluation of innovative drugs from a broader perspective by bridging concepts from health economics and business economic valuation. This approach may justify a drug price when the ICER exceeds the threshold.

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New technologies in gynaecologic cytology and its effects on both Bethesda classification and screening policy

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Cervical cancer is one of the most common cancers. The conventional Papanicolaou (Pap) smear has been mainstay of cervical cancer prevention for more than 75 years. Due to this success rate, it has been accepted as the most successful screening test. The success of Pap smear depends on the performance of the cytopathologist, control of the positive and negative reports and ancillary techniques. Image analysers (rescreening), archives, consultation and use of common terminology in reporting (Bethesda System 2014) also play an important role. The spectrum of cervical cytologic abnormalities ranges from equivocal changes to the pathognomonic nuclear and cytoplasmic effects of Human Papilloma Virus (HPV) infection to severe cytologic neoplastic changes. The new alternative technologies, as liquid-based cytology, molecular diagnostics and additional screening options provide further insight into the biology of HPV. Changes in histopathology terminology, approval and implementation of prophylactic HPV vaccines, updated guidelines for screening and clinical management, have led to increased accuracy in prevention, diagnosis and management.

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Recent trends in application of virus-derived particles as nucleic acid delivery agents

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Nucleic acid delivery comprises vector mediated transfer of genetic material into cells and favourable alternation of cellular function or structure. Considering the intolerance of cells toward exogenous genetic material, the vectors of interest have to act on different steps along the gene expression pathway in order to evoke the desired outcome. In the last 25 years of gene/cell therapy, viral vectors have dominated clinical trials due to their superior transduction efficiency acquired through evolution. Non-viral vectors involve a variety of (bio)chemical particles that are generally less efficient than viruses, but their application is comparatively less costly and with reduced adverse effects on patients and biosafety. A relatively novel category of non-viral transfection agents includes derivatives of viral peptides that owing to their origin can mimic viral strategies in cell targeting and nucleic acid delivery. The potential advantage of these biomolecular particles lies in complementary blend of viral efficiency and chemical particle tractability suitable for design of highly effective and safe gene therapy vehicles. This may be achieved by using standard molecular biology techniques as well as in vitro chemical modification in order to improve the bio-particles' composition and mode of action.

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Yeast whole genome growth analysis

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Applied is "big data analytics" for inference of yeast whole genome expressions under chemostat limited nutrient growth conditions (glucose, ammonium, sulphate, phosphate, uracil, leucine). Expression profiles cover the range of specific growth rates from 0.005 to 0.35/h measured at steady states. Applied are linear and nonlinear models for inference of key genome expressions dependencies on the nutrient limitations and growth rate. The linear models are with sparse elastic algorithms of partial least squares, Fisher discrimination, and mixed multivariate distributions discrimination, all available in R environment. Variable importance (gene) are inferred by the nonlinear model of regularized decision tree forests. Gene expression cluster analysis reveals that most of gene expressions (about 80%) are linearly correlated with the specific growth rates independent of nutrient limitations. However, identified are specific gene pools with expressions dependent on limitations by ammonium, sulphate and phosphate. For example, from the proposed model, under glucose limitations the most important factor with positive effects are: MOB2 protein amino acid phosphorylation protein kinase activator activity, and RPL22B protein biosynthesis structural constituent of ribosome; while the most important suppression is for APM2 vesicle-mediated transport clathrin binding, RNA elongation from RNA polymerase, and CIT3 tricarboxylic acid cycle citrate (Si)-synthase activity.

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Biological activities of beta-glucans isolated from spent brewer's yeast

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β-D-Glucans (hereafter referred to as "β-glucans") are glucose polymers which belong to a group of physiologically active compounds called "biological response modifiers" (BRMs). Their immunostimulatory activity makes them suitable for application in human and veterinary medicine, in pharmaceutical and chemical industries as well as in production of food, feed and cosmetics. In the Western world, dietary supplements containing β-glucans up to now have been mostly produced from baker's yeast, *Saccharomyces cerevisiae*. Among various compounds that can be isolated from yeast, β-glucans can be used in wound healing and treatment of various diseases, such as cancer, infectious diseases, hypercholesterolaemia and diabetes. Their antioxidative properties and synergistic