A short title:

Malignant transformation and cancer progression

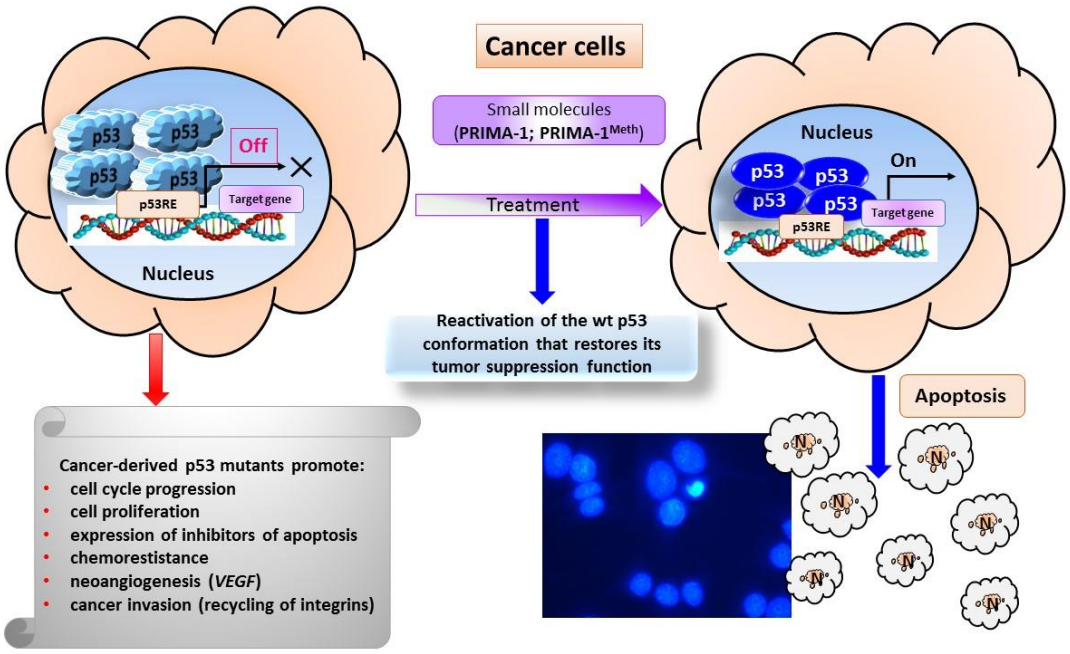
A regular title:

Molecular pathways involved malignant transformation and cancer progression: their role as potential therapeutic targets.

Abstract

The deregulation of the most important cellular processes like cell cycle and apoptosis are important steps in the onset of cancer, giving cells unlimited reproductive potential and increasing their likelihood of survival. The cell cycle is an essential and tightly regulated four-stage process that effects the accurate duplication and transmission of genetic content to cells' progeny. Cyclin-dependent kinases (CDKs) are key elements of the mammalian cell cycle machinery. Their activity is normally regulated *via* cyclin binding, phosphorylation events, and interactions with endogenous CDK inhibitors. Malfunctions in the control of the cell cycle can be specifically countered using pharmacological CDK inhibitors. Importantly, CDK inhibitors are very effective against both rapidly dividing and quiescent cancer cells; this is particularly relevant in the treatment of malignancies such as chronic lymphatic leukemia (CLL) and multiple myeloma (MM) that exhibit both a low mitotic index and apoptotic defects.

Moreover, functional inactivation of tumor suppressors and upregulation /hyperactivation of proto-oncogenes are major events involved in malignant transformation of cells. The biological functions of most important tumor suppressor genes (e.g. *TP53, RB, BRCA1, BRCA 2, APC and VHL)*) and proto-oncogenes (*EGFR, MDM2, MYC and RAS*) and the consequences of their misregulation will be discussed. Finally, the pharmacological targeting (single or combined treatment) of selective cellular components deregulated in cancer cells will be discussed to evidence the advantage of targeted therapy over conventional anti-cancer drugs (e.g. anthracyclins) that are known to induce severe side effects including the risk of secondary malignancies.



Topics

1. Malignant transformation, a multistep process involving escape of cells from the control of cell cycle and apoptosis and metabolic reprogramming
2. Functions of tumour suppressors and their inactivation in the first stages of malignant transformation
3. Role of proto-oncogenes and their overexpression during malignant transformation and progression
4. Major factors contributing to cancer dissemination: role of hypoxia and microenvironment
5. Pharmacological targeting of selected pathways to induce (synthetic) lethality exclusively in cancer cells

Termin	Dzień tygodnia	Godzina	Miejsce
12.11.2018	Poniedziałek	DZIEŃ WOLNY OD ZAJĘĆ	
13.11.2018	Wtorek	14.15 – 17.00	Minicentrum Konferencyjne (Luwr)
14.11.2018	Środa	14.15 – 17.00	Minicentrum Konferencyjne (Luwr)
15.11.2018	Czwartek	14.15 – 17.00	Minicentrum Konferencyjne (Luwr)
16.11.2018	Piątek	12.15 – 15.00	Minicentrum Konferencyjne (Luwr)
20.11.2018	Wtorek	9.15 – 12.00	Minicentrum Konferencyjne (Luwr)