

Oncoprotein

Oncoproteins are any [proteins](#) coded by an [oncogene](#) and they play an important role in the regulation or synthesis of proteins linked to tumorigenic cell growth. Some oncoproteins are accepted and used as [tumor markers](#).

Limitations in [genetic stability](#) and recapitulating accurate physiological disease properties challenge the utility of patient-derived (PD) [cancer models](#) for reproducible and [translational research](#).

Uhlmann et al. from the [University Hospital of Düsseldorf](#), genetically engineered a [portfolio](#) of [isogenic human-induced pluripotent stem cells](#) (hiPSCs) with different pan-cancer relevant [oncoprotein signatures](#) followed by differentiation into lineage-committed [progenitor cells](#). Characterization on molecular and biological level validated successful stable [genetic alterations](#) in [pluripotency](#) state as well as upon differentiation to prove the functionality of the approach. Meanwhile proposing core molecular networks possibly involved in early dysregulation of [stem cell homeostasis](#), the application of the cell systems in comparative substance testing indicates the potential for [cancer research](#) such as identification of augmented [therapy](#) resistance of [stem cells](#) in response to activation of distinct oncogenic [signatures](#) ¹⁾.

F-box and WD repeat domain-containing 7 ([FBW7](#)) is a SCF-type E3 [ubiquitin](#) ligase targeting a multitude of [oncoproteins](#) for degradation.

¹⁾

Uhlmann C, Nickel AC, Picard D, Rossi A, Li G, Hildebrandt B, Brockerhoff G, Bendt F, Hübenthal U, Hewera M, Steiger HJ, Wieczorek D, Perrakis A, Zhang W, Remke M, Koch K, Tigges J, Croner RS, Fritsche E, Kahlert UD. [Progenitor cells](#) derived from [gene](#)-engineered human induced [pluripotent stem cells](#) as synthetic cancer cell alternatives for [in vitro](#) pharmacology. *Biotechnol J*. 2022 Mar 25:e2100693. doi: 10.1002/biot.202100693. Epub ahead of print. PMID: 35334498.

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