

Supplementary Figure Legends

Figure S1. Characterization of HGPS markers in the inducible GFP-progerin fibroblast cell system. Representative immunofluorescence staining of GFP-progerin, Lamin B1, LAP2, HP1 γ , H3-K27-3M, γ H2AX, 53BP1 in GFP-progerin inducible skin fibroblasts in which progerin remained uninduced (OFF) or was induced for 4 days by doxycycline (ON). Scale bar: 10 μ M.

Figure S2. Dose response curves for primary screening hits in GFP-progerin inducible fibroblasts. Dose-response curves from compounds of the primary screen that fall into the categories of corticoids (**A**), PDE inhibitors and adrenergic agonists (**B**), and various pathways (**C**) indicating the effect for 1, 3, 10, and 29 μ M of compound treatment on the induction of GFP-progerin and the formation of aging defects in Lamin B1, and γ H2AX in GFP-progerin inducible fibroblasts. Positive and negative control levels for all aging markers are indicated by dotted lines in green and red, respectively. Values represent averages \pm SD from 3 experiments.

Figure S3. Quantification of the effect of retinoids on HGPS markers in HGPS patient cells. Quantification of immunofluorescence staining (See Material and Methods) for progerin, Lamin B1, LAP2, HP1 γ , H3-K27-3M, γ H2AX, 53BP1 in HGPS patient fibroblast upon treatment with the retinoic acid receptor (RAR) agonists isotretinoin, tamibarotene and tazarotene, or the pan-RAR antagonist BMS493at indicated concentrations (Range: 1nM-10 μ M). * p <0.05; significant improvement of marker in compound treated vs. untreated HGPS patient cells. # p <0.05; significant worsening of marker in compound treated vs. untreated HGPS patient cells. Values represent averages \pm SD from 3 experiments.

Figure S4. Quantification of the effect of retinoids on lamin protein ratios in HGPS patient cells. Quantification of the effect of 10 μ M of isotretinoin, tamibarotene or tazarotene retinoid treatment of HGPS dermal fibroblasts on the ratios of lamin A, lamin C and progerin protein

levels as depicted in the western blot of Figure 5C. Values represent averages \pm SD from 3 experiments. All determined ratios were non-significant (n.s. ; $p>0.05$) in treated vs. untreated HGPS patient fibroblasts. Values represent averages \pm SD from 3 experiments.

Figure S1

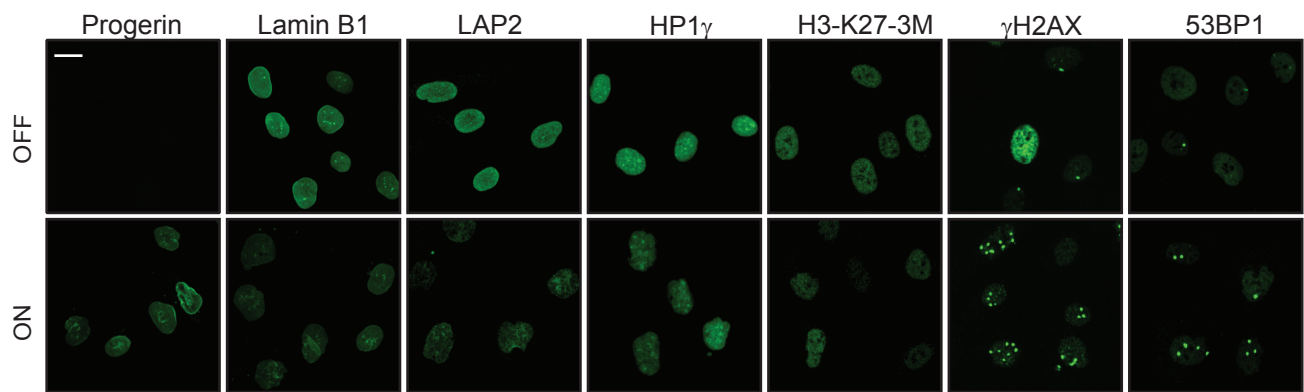
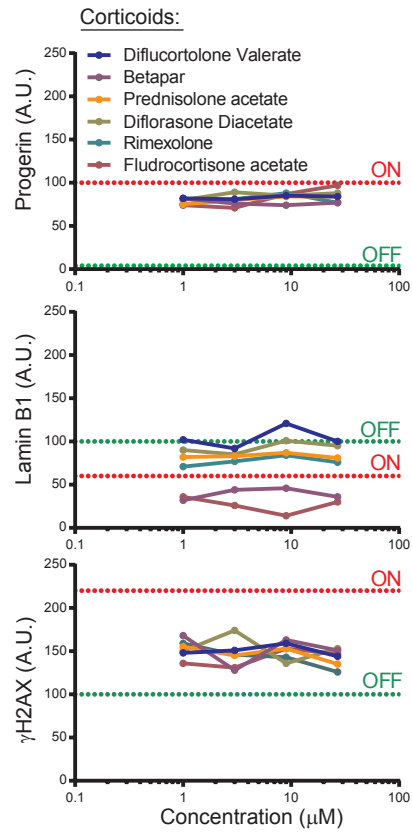
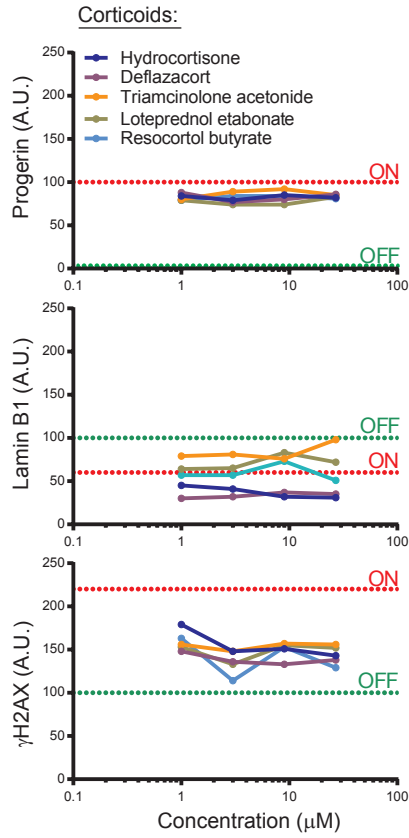
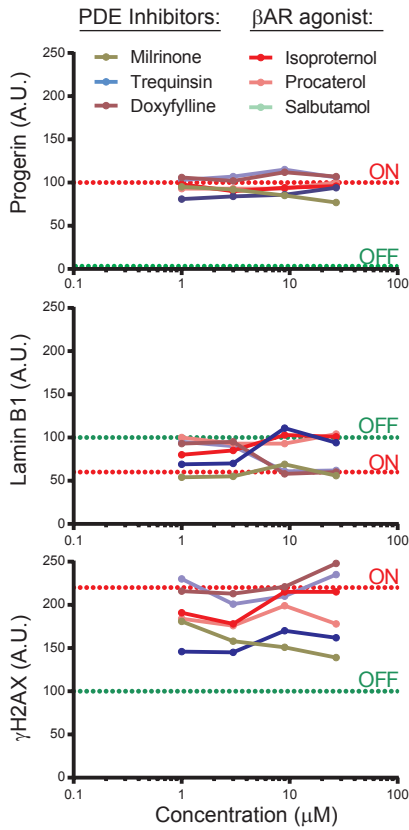


Figure S2

A



B



C

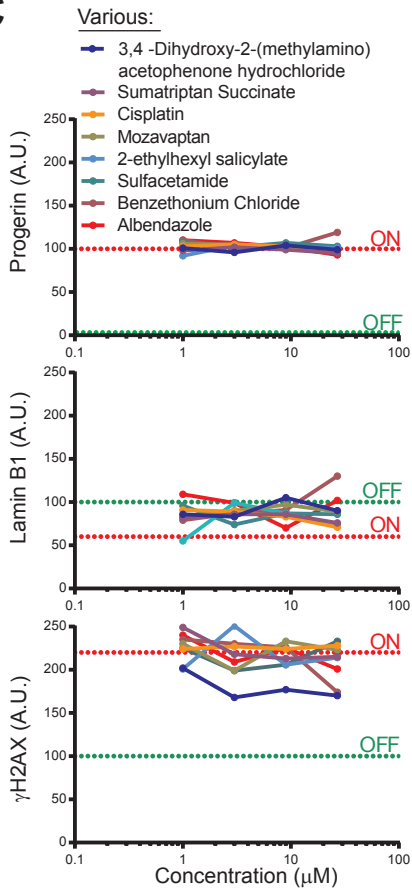


Figure S3

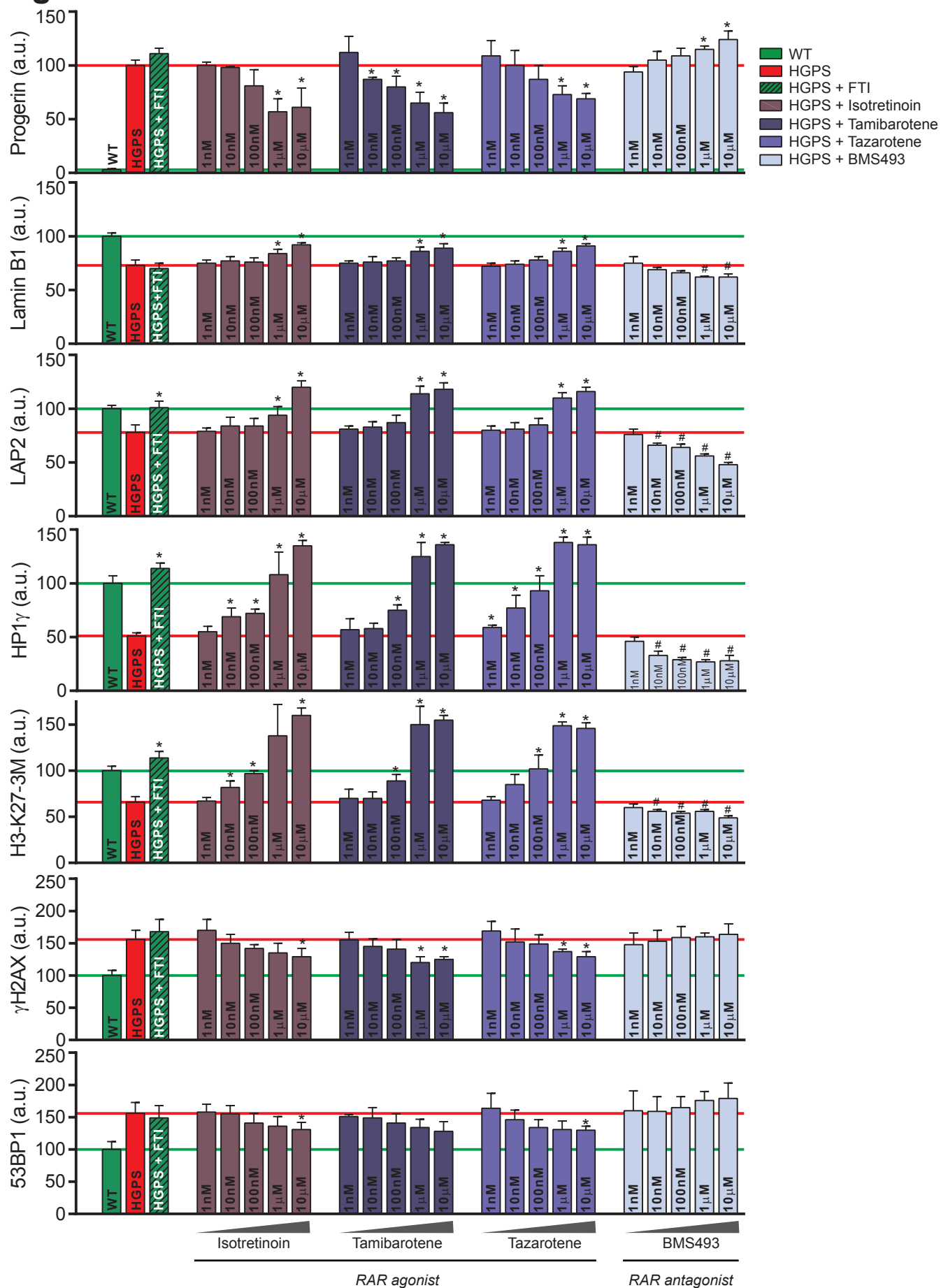


Figure S4

