

Table 1 microRNAs selected for modulation in antibody-producing CHO cell lines

miRNA	Rationale for Evaluation	Target Genes	References
anti-miR let-7a	Regulates cell proliferation, cell cycle progression and apoptosis	Ras, c-myc	Dong et al., 2010; Pillai et al., 2005
	Regulates transcriptional initiation	HMGA2	Shimizu et al., 2010
	Controls cell cycle to avoid replicative stress-induced senescence	E2F2, CCND2	Gammell et al., 2007
		NF2, CDK6	Bueno et al., 2010
miR-10a	Upregulates protein translation/synthesis	HOX genes	Orom et al., 2008
	Alters cell survival, apoptosis, and self-renewal pathways	Ribosomal proteins	Ovcharenko et al., 2007
		TRAIL pathway	Bryant et al., 2012
anti-miR-10a	Down-regulation observed in CML; regulates cell growth	USF2	Agirre et al., 2008
anti-miR-16	Regulates cell cycle progression, cell proliferation, and apoptosis	BCL-2	Cimmino et al., 2005
		CCND1	Bonci et al., 2008
		WT1	Gao et al., 2011
miR-21	Overexpressed in numerous cancers; regulates apoptosis	Casp 3, PDCD4	Yin et al., 2008; Biggar et al., 2009
	Increases during cold stress/heat shock to adapt to stress and increase survival	NFIB, TPM1	Pan et al., 2010; Si et al., 2007
		PTEN signaling	Chan et al., 2005
anti-miR-21	Reduced miR-21 levels increased growth rate in HeLa cells		Cheng et al., 2005
anti-miR-101	Regulates proliferation, histone methylation, and stem cell pluripotency	EZH2	Friedman et al., 2009
anti-miR-145	Down-regulated in multiple cancers and in B cell malignancies	Myc, IRS1	Gammell et al., 2007
	Regulates cell proliferation and apoptosis	MAPK7, ERK5	Zhang et al., 2011
		FLI1, DFF45	Zhang et al., 2010
anti-miR-143	Down-regulated in multiple cancer types	AKT signaling	Borralho et al., 2011
	NFkB-dependent proliferation/apoptosis	MAPK7, ERK5	Jordan et al., 2011
	Alters glucose/energy metabolism through ORP8 (AKT signaling)		