

MST <sup>WT</sup> aRMS					MST <sup>Null</sup> aRMS				
Tumor	ID#	MYOD1	MYOG	MYF5	Tumor	ID#	MYOD1	MYOG	MYF5
1	571	-	-	-	1	636	+	+	nd
2	579	-	-	+	2	662	+	+	nd
3	585	+	+	nd	3	663	-	-	-
4	586	+	+	nd	4	692	-	-	+
5	615	+	-	nd	5	695	+	+	nd
6	651	+	+	nd	6	696	+	-	nd
7	656	-	-	-	7	730	+	+	nd
8	680	+	+	nd	8	733	+	+	nd
9	702	+	+	nd	9	734	+	+	nd
10	706	+	-	nd	10	736	+	+	nd
11	714	+	+	nd	11	742	+	+	nd
12	720	+	-	nd	12	743	+	+	nd
13	723	+	+	nd	13	744	+	+	nd
14	726	-	-	-	14	790	+	+	nd
15	757	+	+	nd					
Of aRMS tumors, total positive for staining		11/12 (91.6%)	8/12 (66.6%)	1/1 (100%)	Of aRMS tumors, total positive for staining		12/13 (92.3.7%)	11/13 (84.6%)	1/1 (100%)

**Supplementary Table 5. Immunohistochemical characterization of the tumors arising from both the MST<sup>WT</sup> and MST<sup>Null</sup> aRMS models.** At least 1/3 of the tumors arising from each model were analyzed according to the diagnostic algorithm described in **Supp. Fig.1**. The identification number of the animal, and whether the immunohistochemical staining was positive (+) or negative (-) for nuclear MYOD1, nuclear MYOG, and/or MYF5 are indicated. Shaded rows indicate tumors negative for all markers, meaning that they classified as non-aRMS. Portions of these data were used to calculate the aRMS tumor penetrance of the models, described in **Supp.Table 4**. (nd), not determined.