

**Extended data Table 1**

<b>Inhibitors</b>	<b>Target(s)</b>	<b>Dosage</b>
<b><i>Small molecules targeting NRAS signaling pathways</i></b>		
Binimetinib (MEK162)	MEK1/2	6µg/10µl (SQ§, 3 times a week for 2 weeks) 50µg/5µl (topical, 5 times a week for 2 months)
Trametinib (GSK1120212)	MEK1/2	1µg/10µl (SQ§, 3 times a week for 2 weeks) 10µg/5µl (topical, 5 times a week for 2 months)
Omipalisib (GSK2126458)	PI3K $\alpha,\beta, \gamma,\delta$ , mTOR	0.3µg/10µl (SQ§, 3 times a week for 2 weeks) 50µg/5µl (topical, 5 times a week for 2 months)
<b><i>Melanocyte-selective toxic agent</i></b>		
Imatinib (ST1571)	c-KIT and other RTKs	100µg/10µl (SQ§, 3 times a week for 2 weeks) 250µg/5µl (topical, 5 times a week for 2 months)
<b><i>Immunological therapeutic agent</i></b>		
SADBE (squaric acid dibutylester)	Protein haptens	1.5-2% (topical, 3 times a week for 1 week) 0.5% (topical, 3 times a week for 2 weeks)

§SQ, subcutaneous injection in 10% DMSO