

**Supplemental Table 1. List of primer sets.**

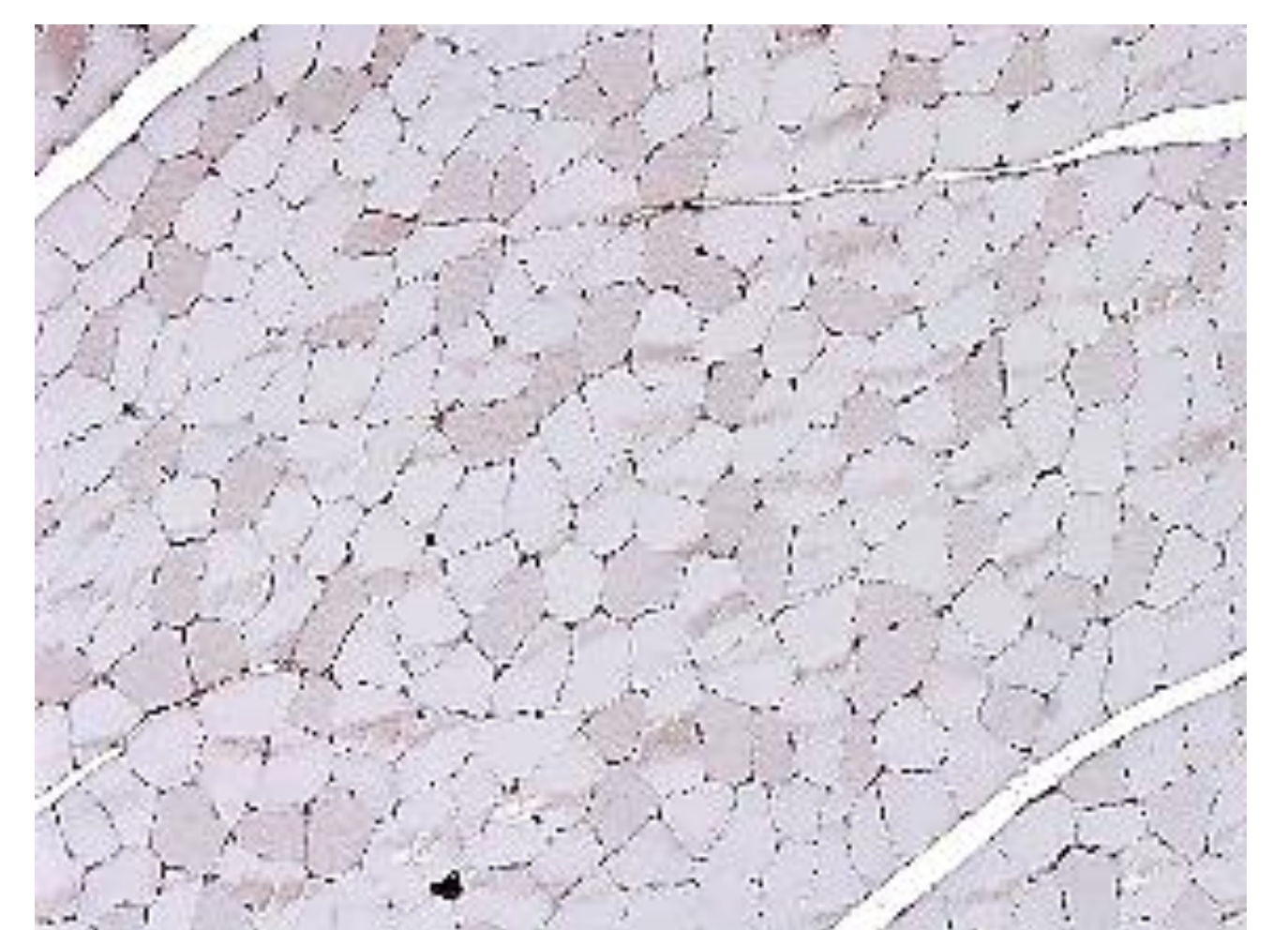
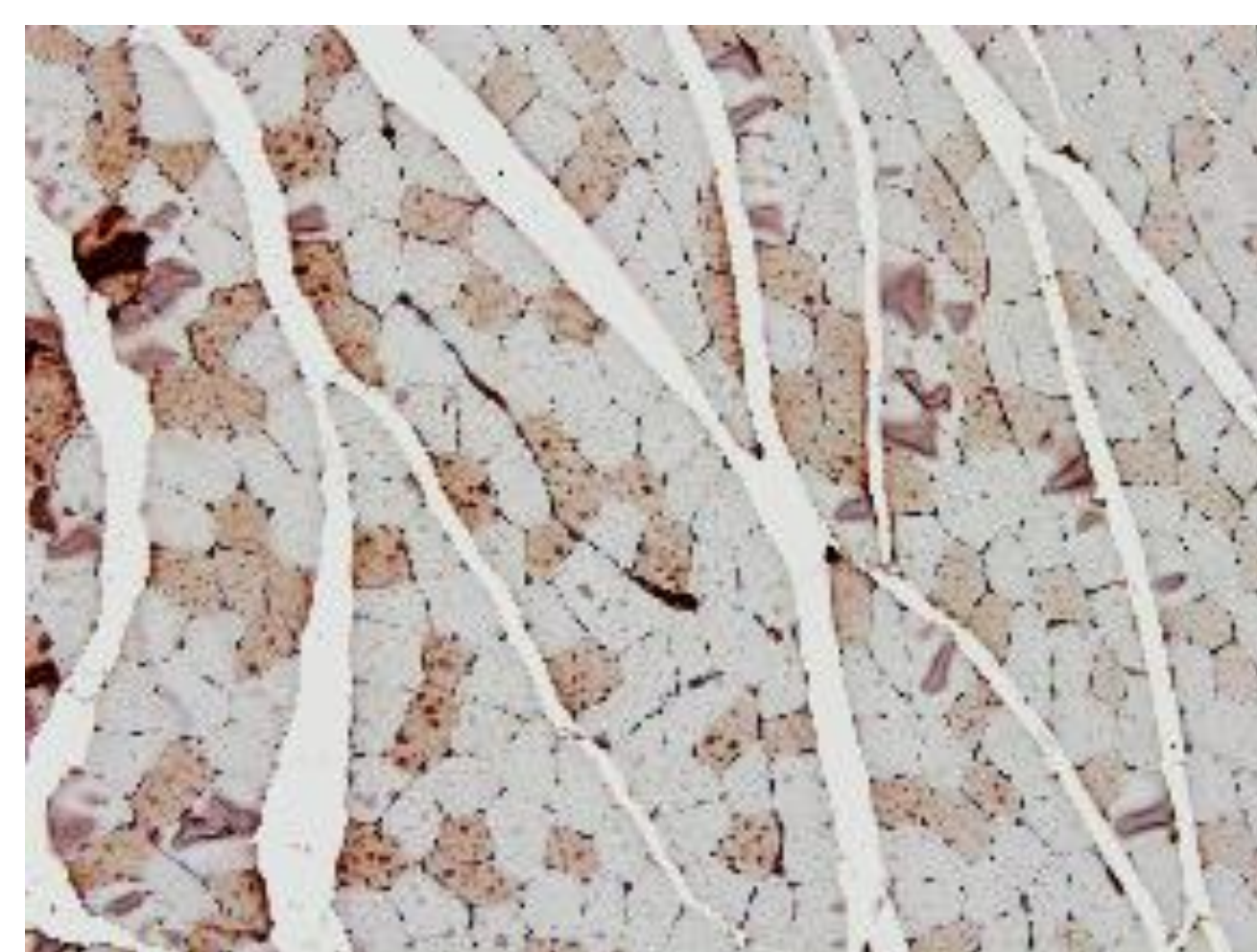
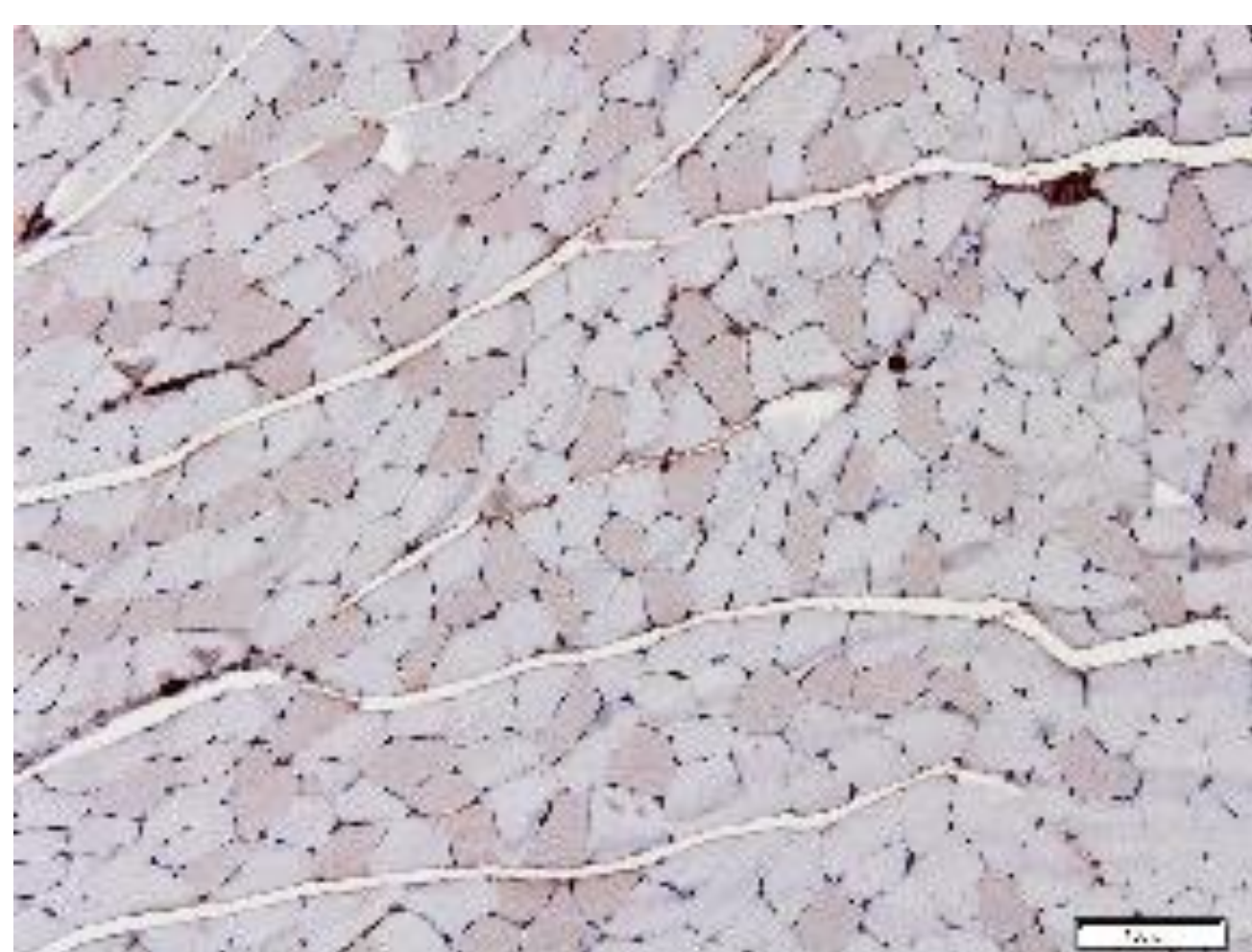
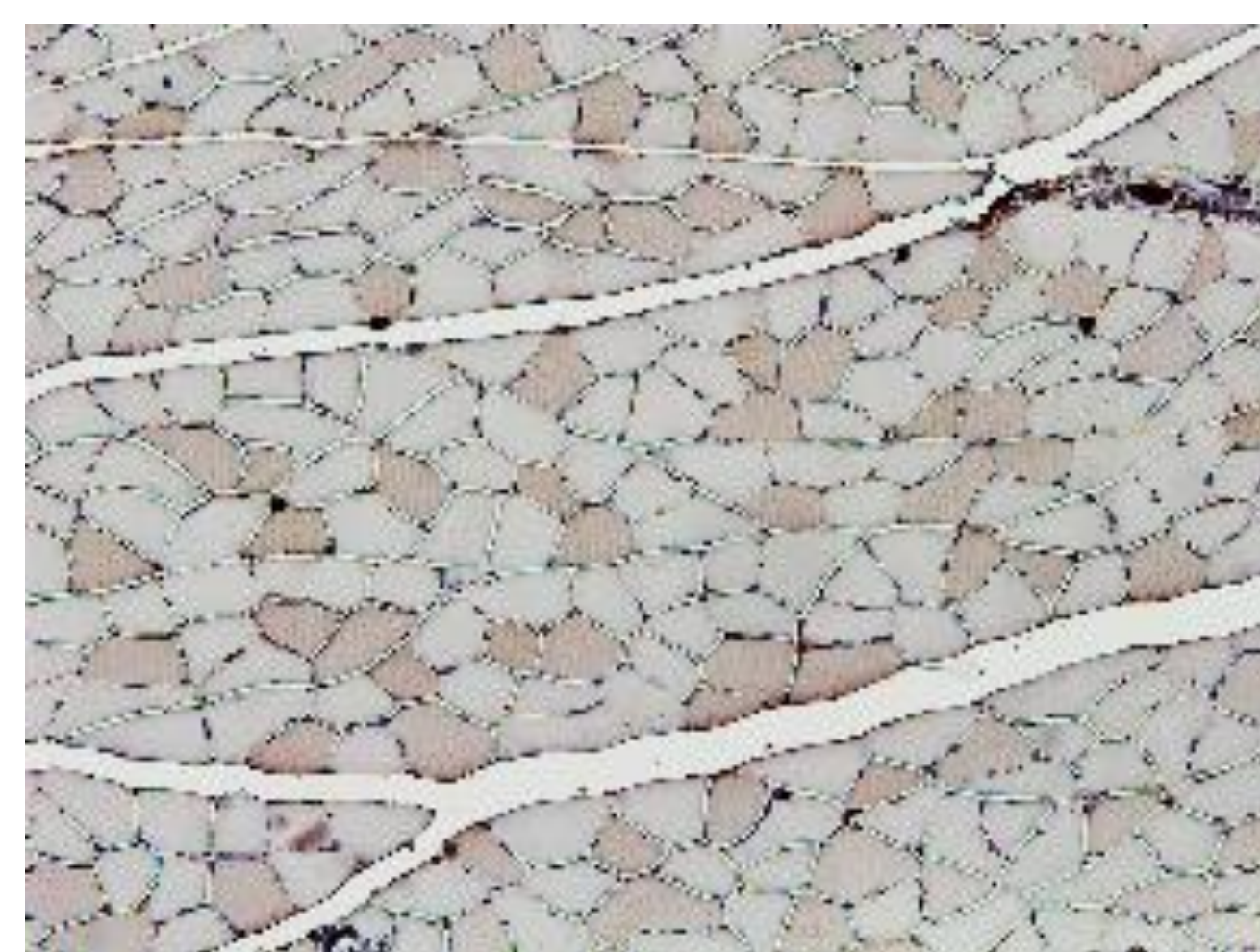
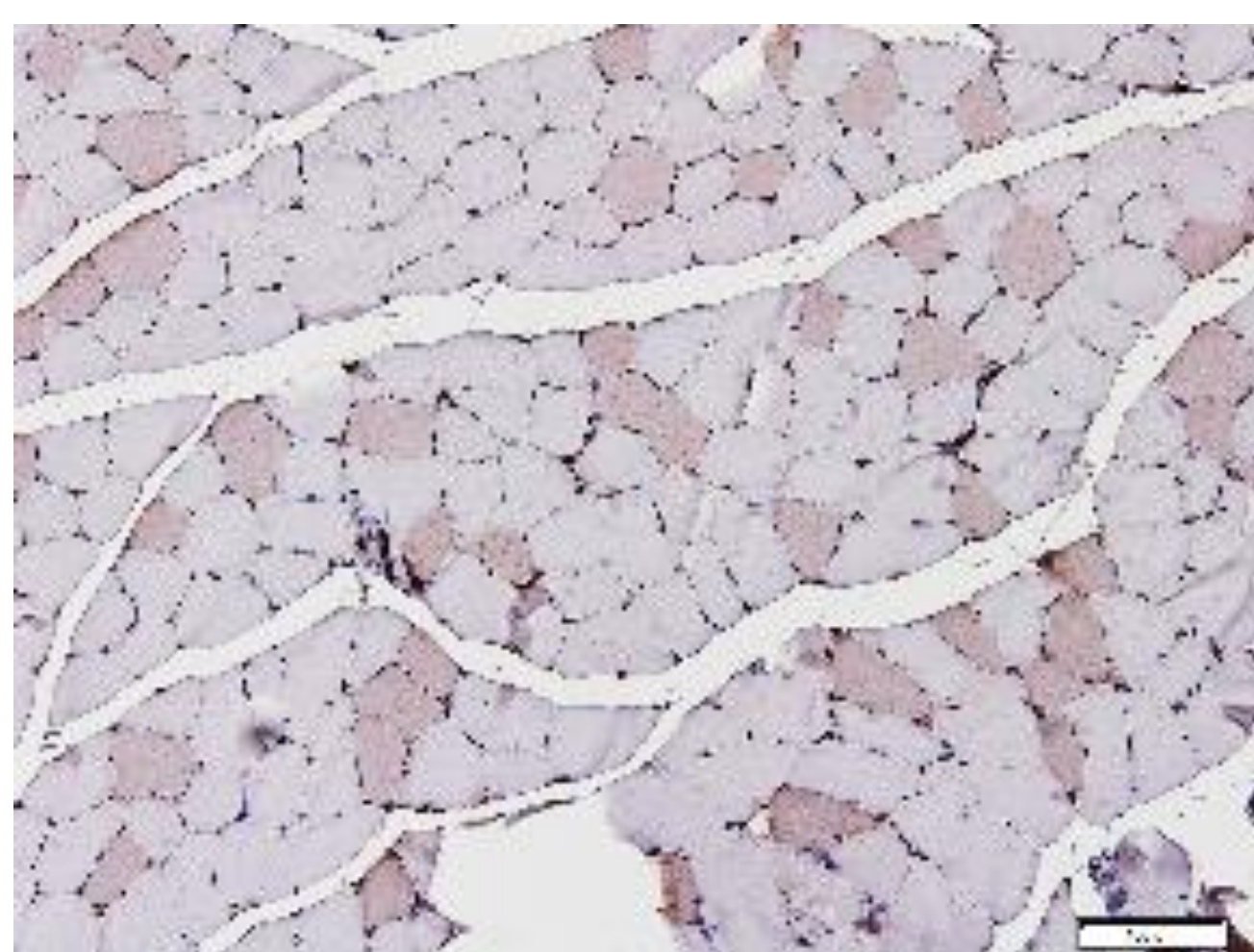
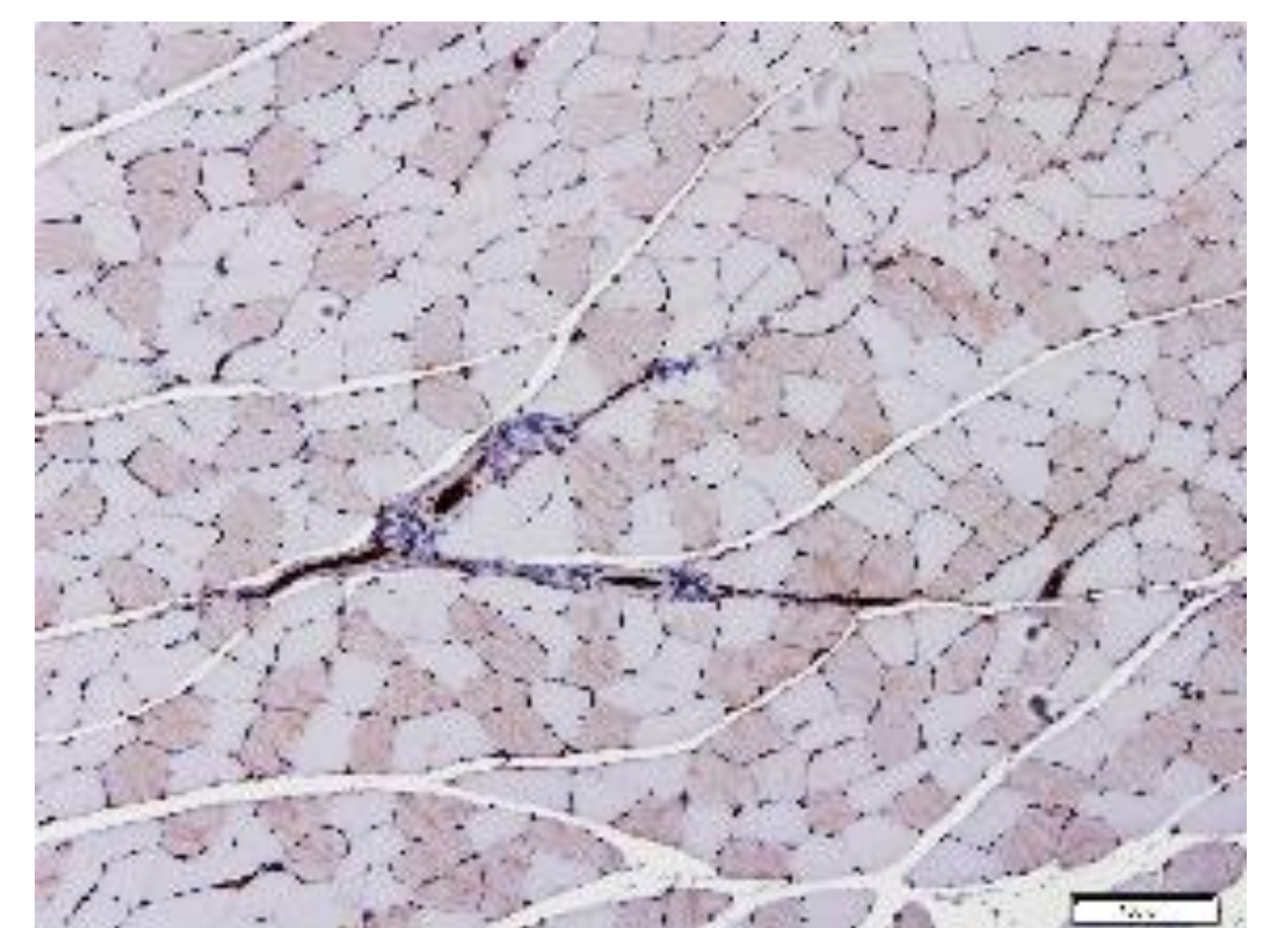
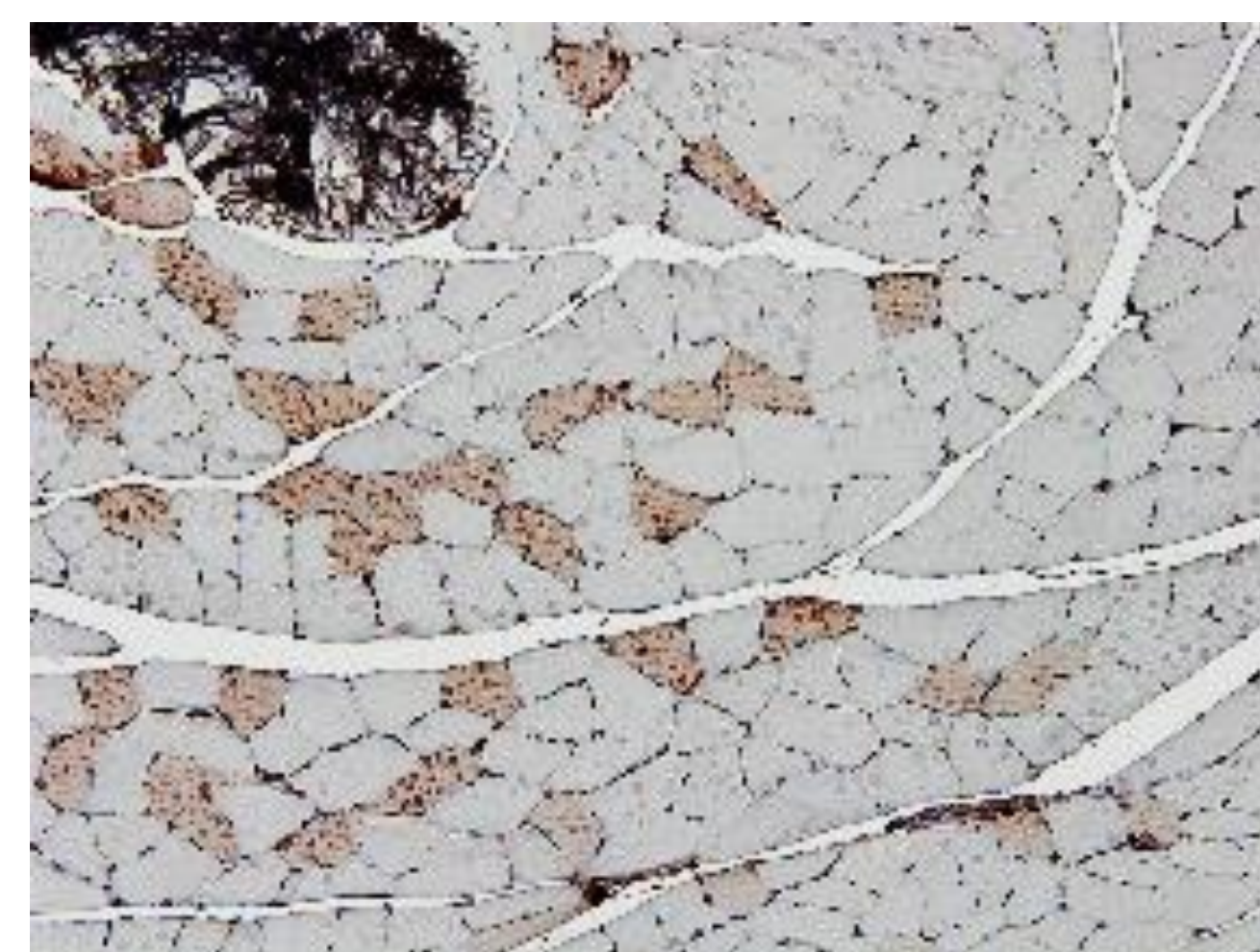
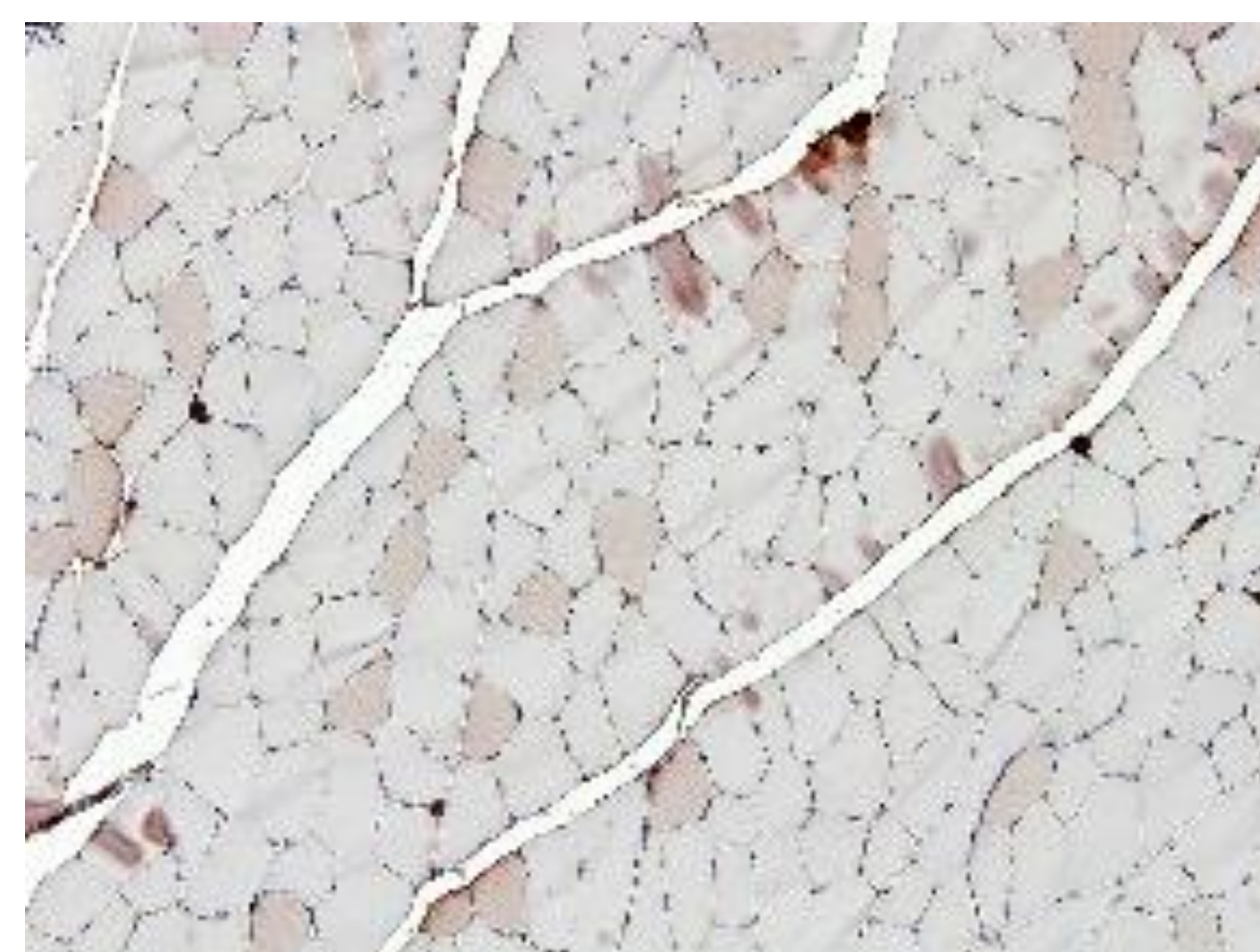
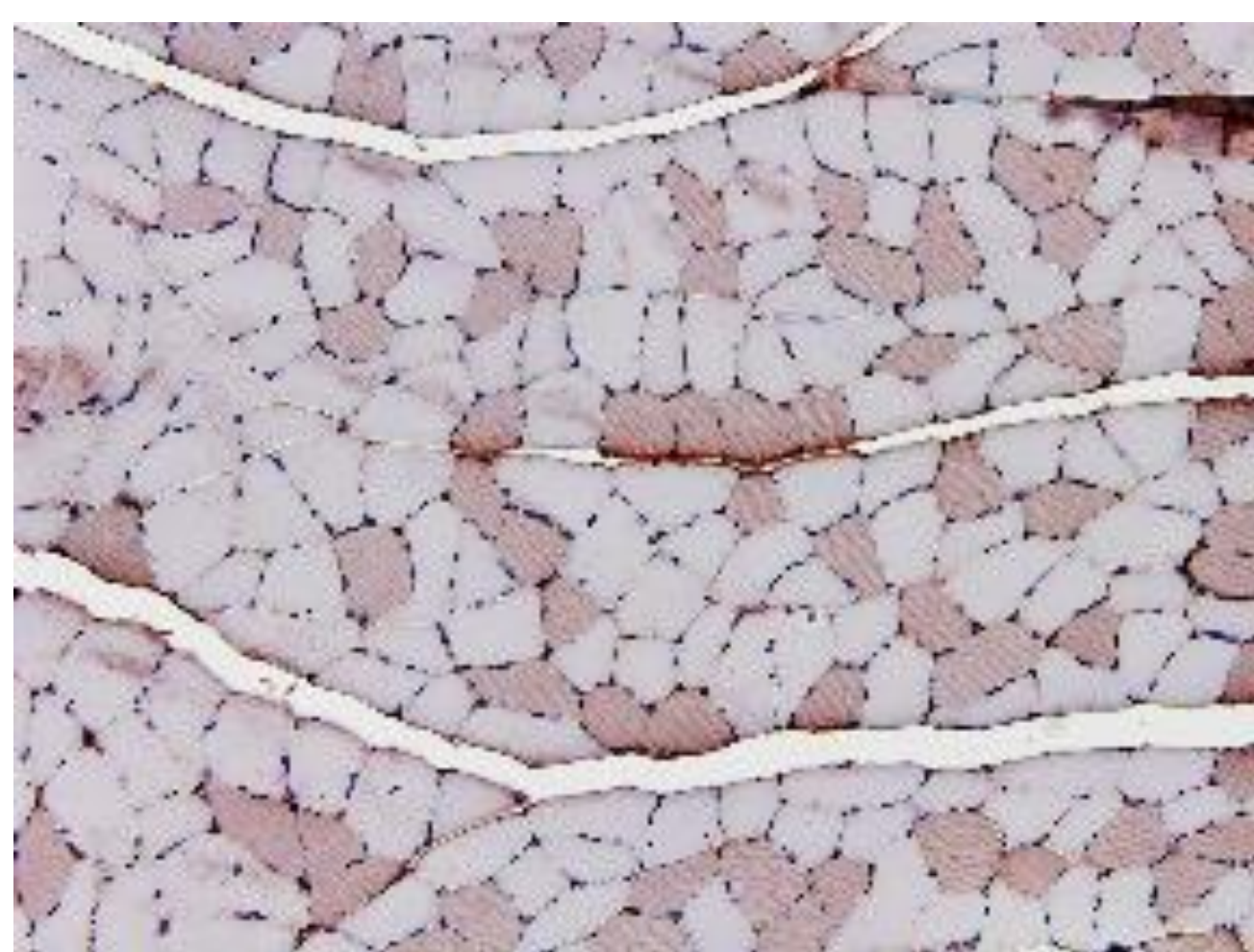
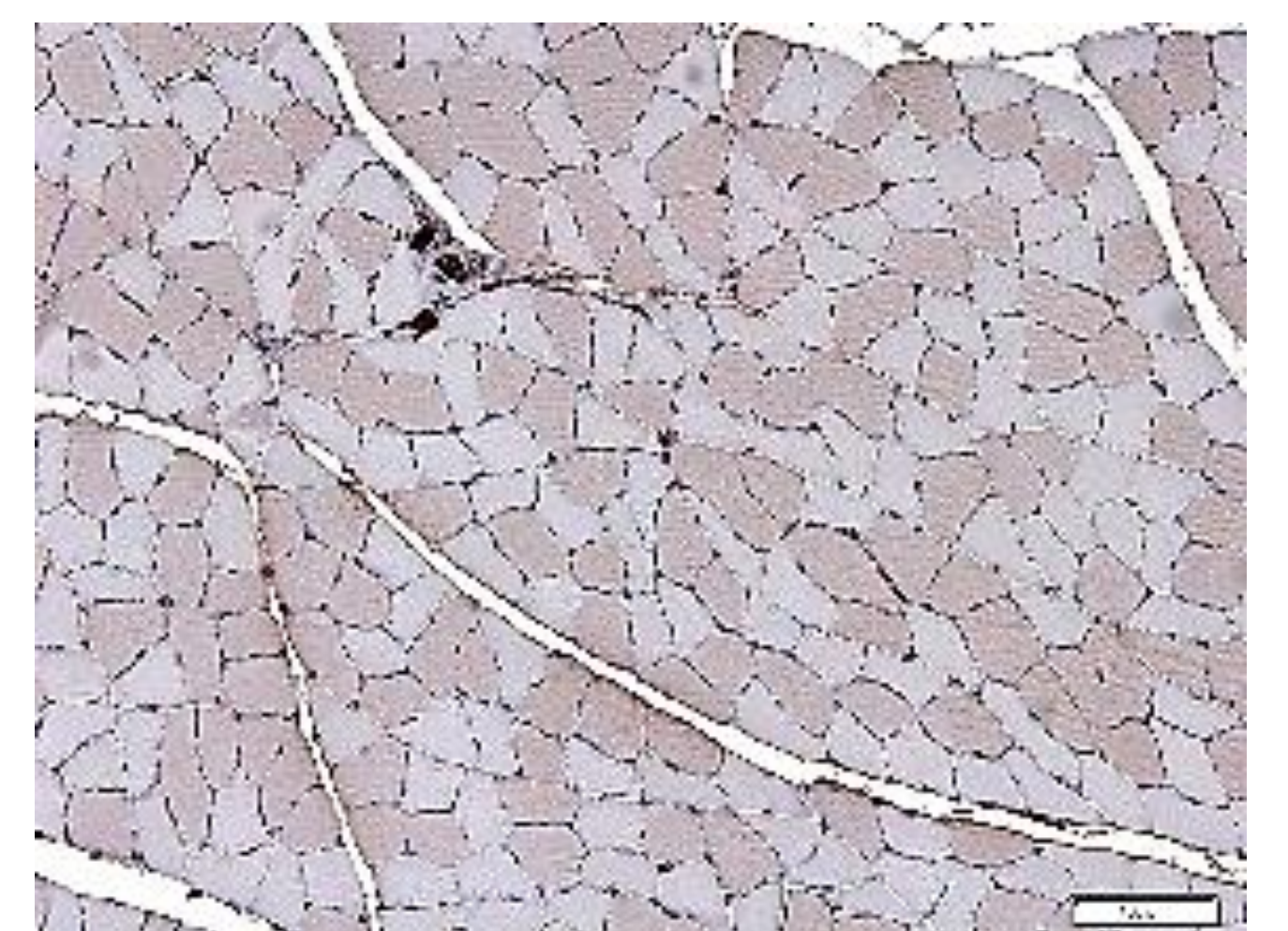
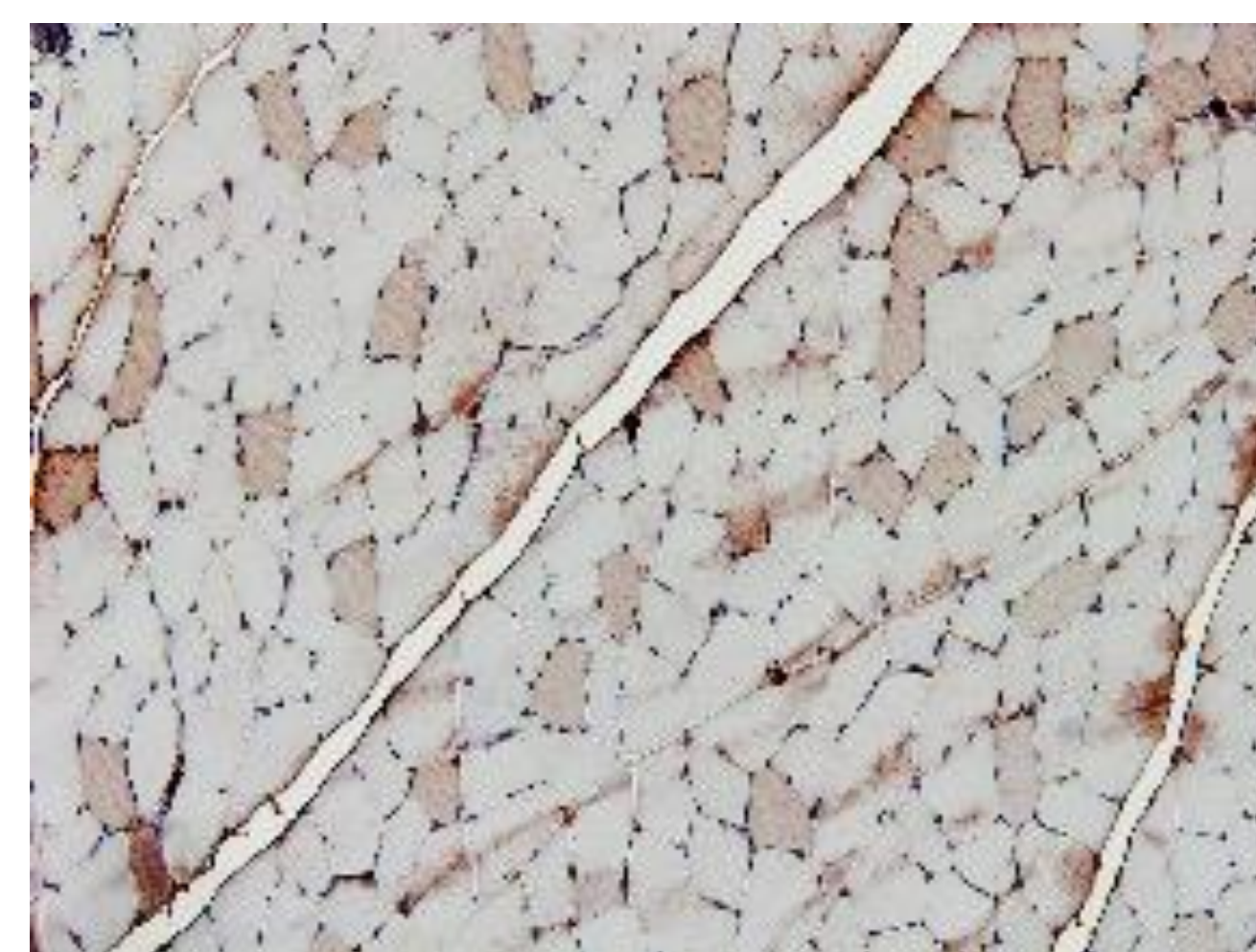
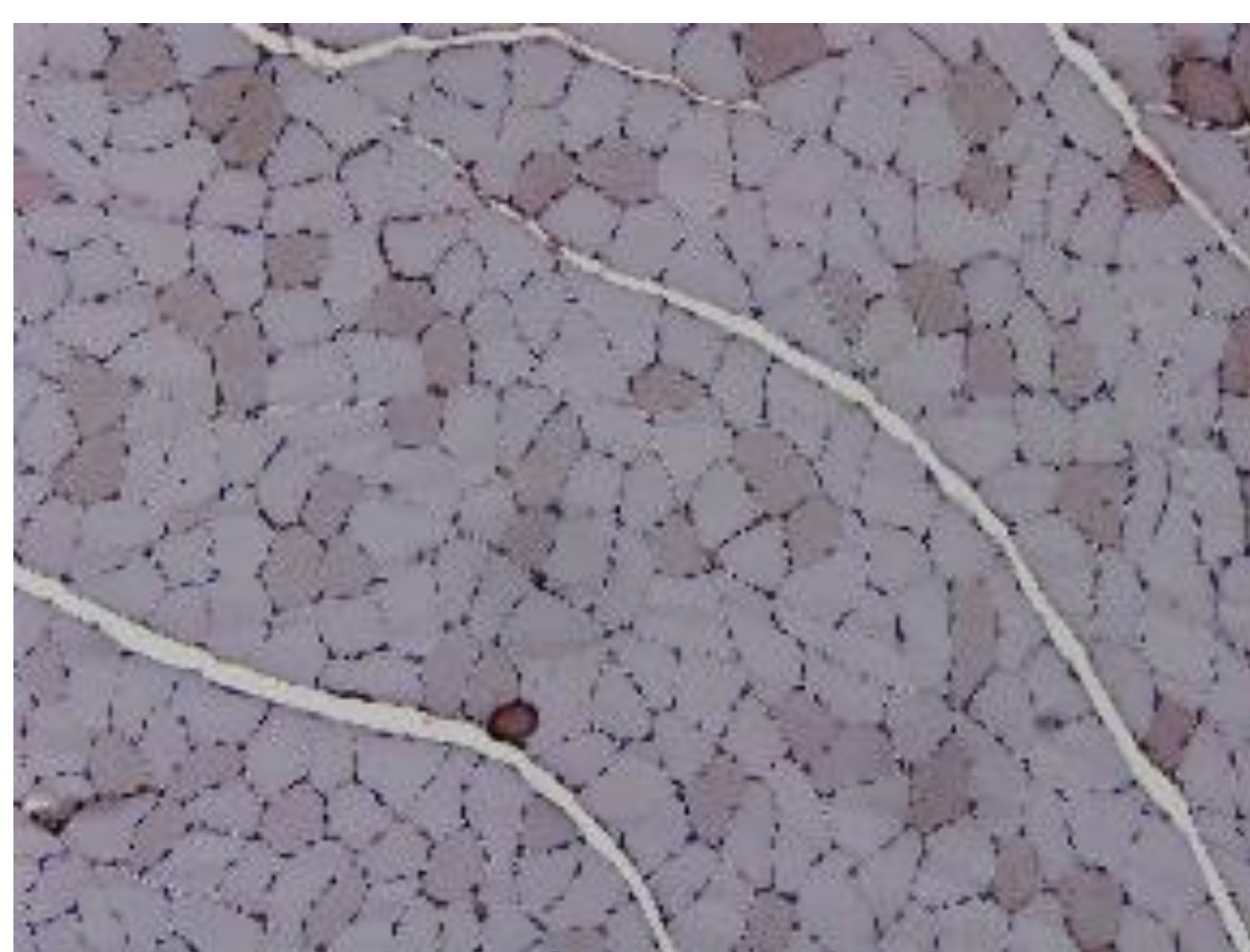
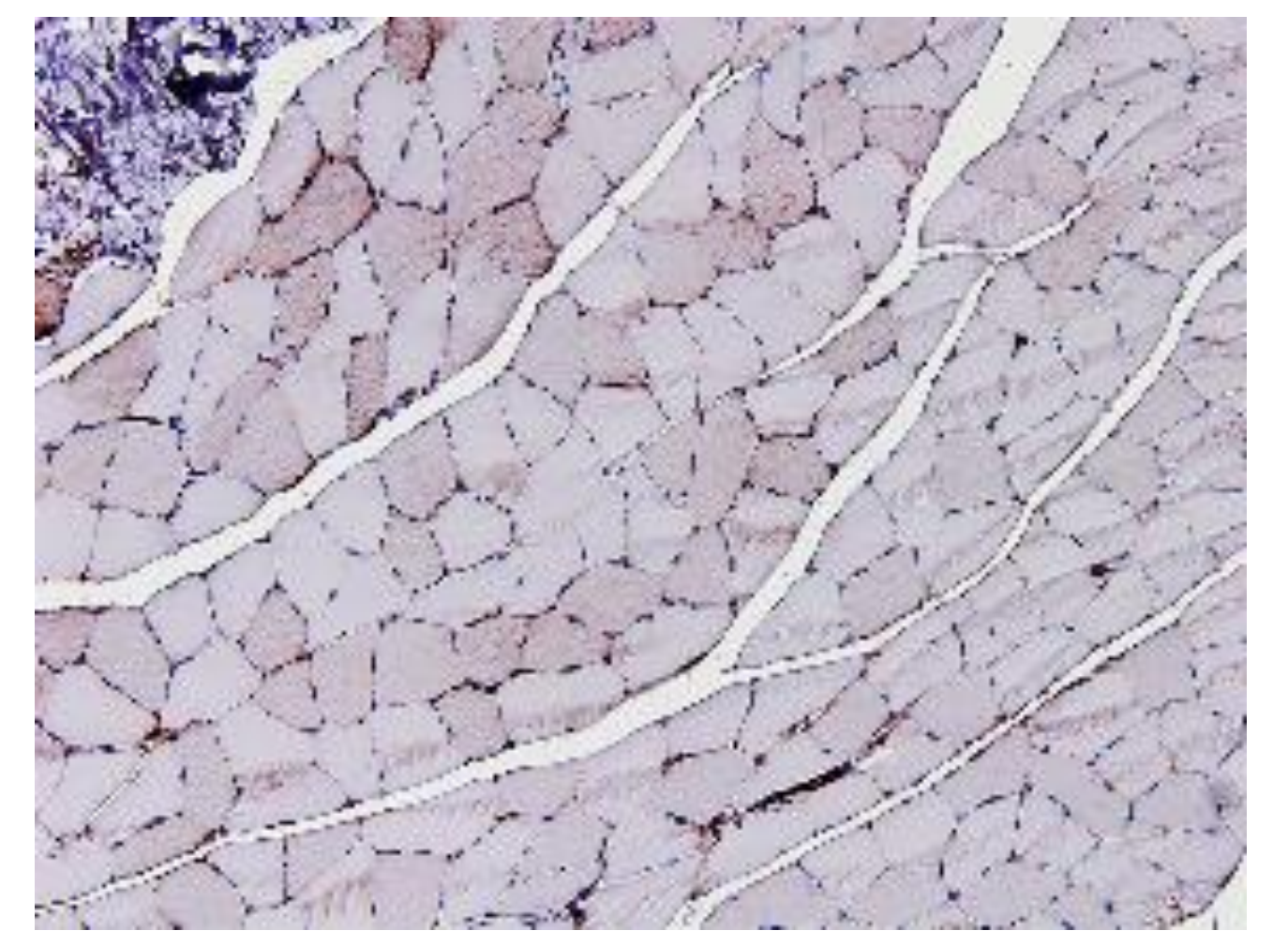
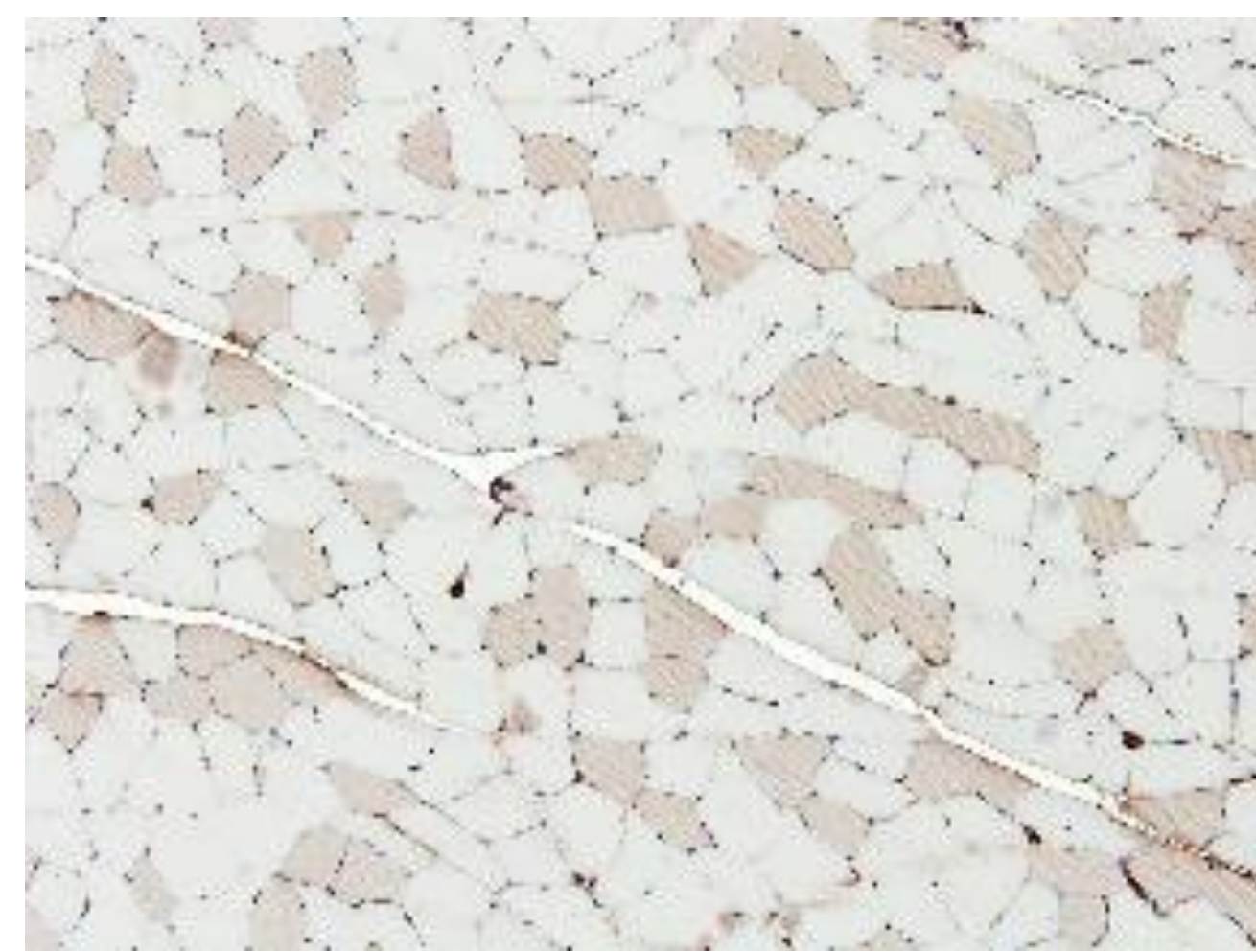
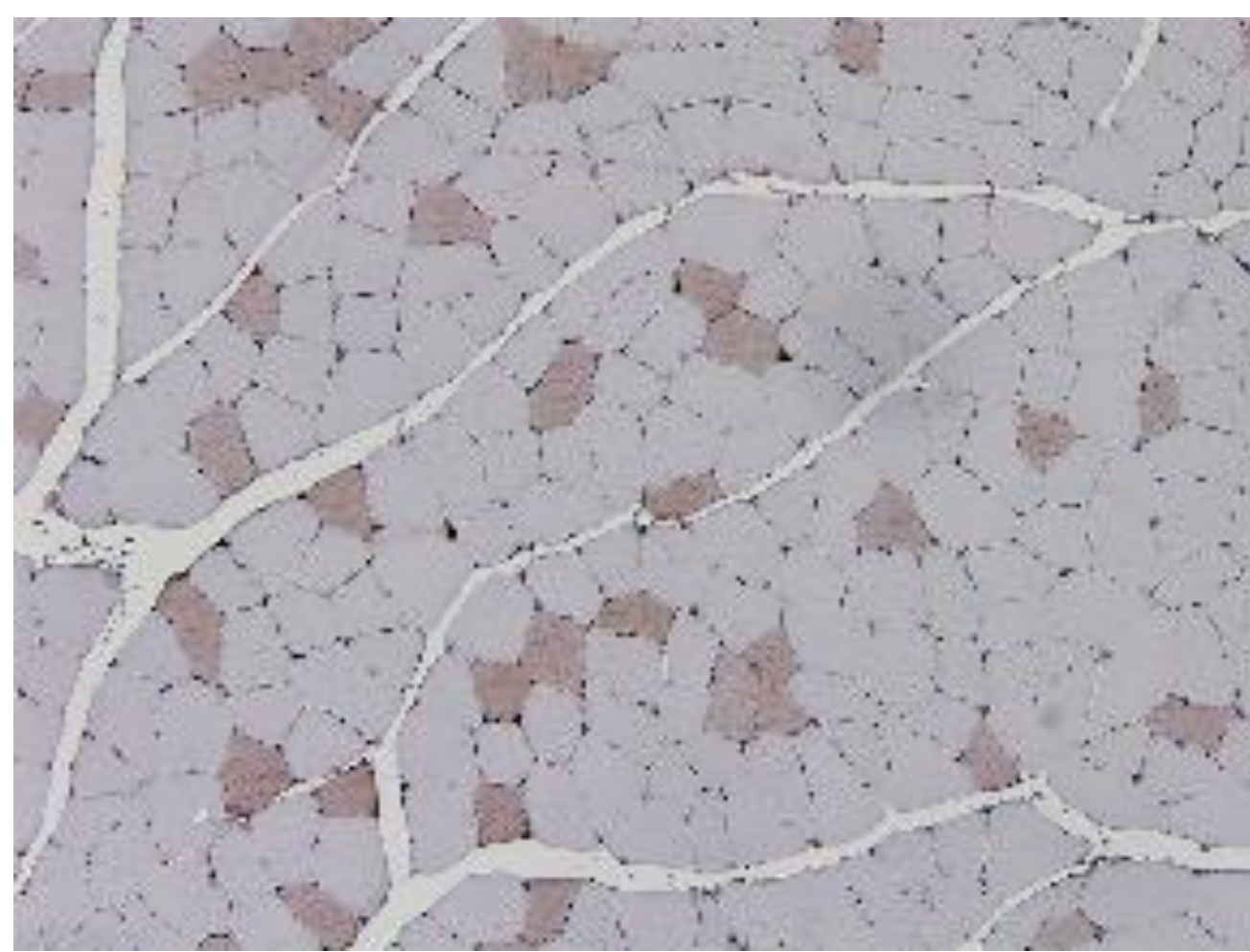
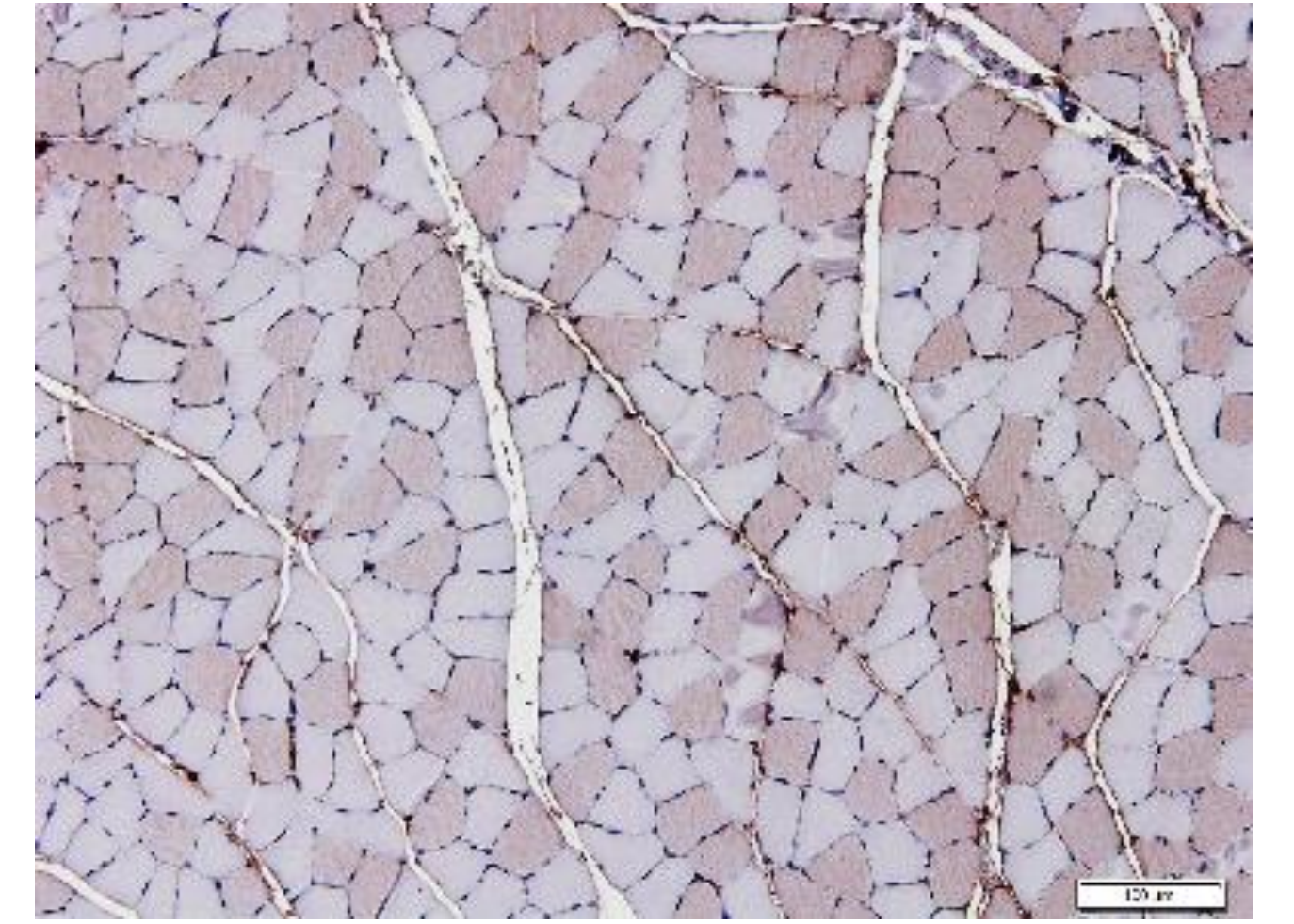
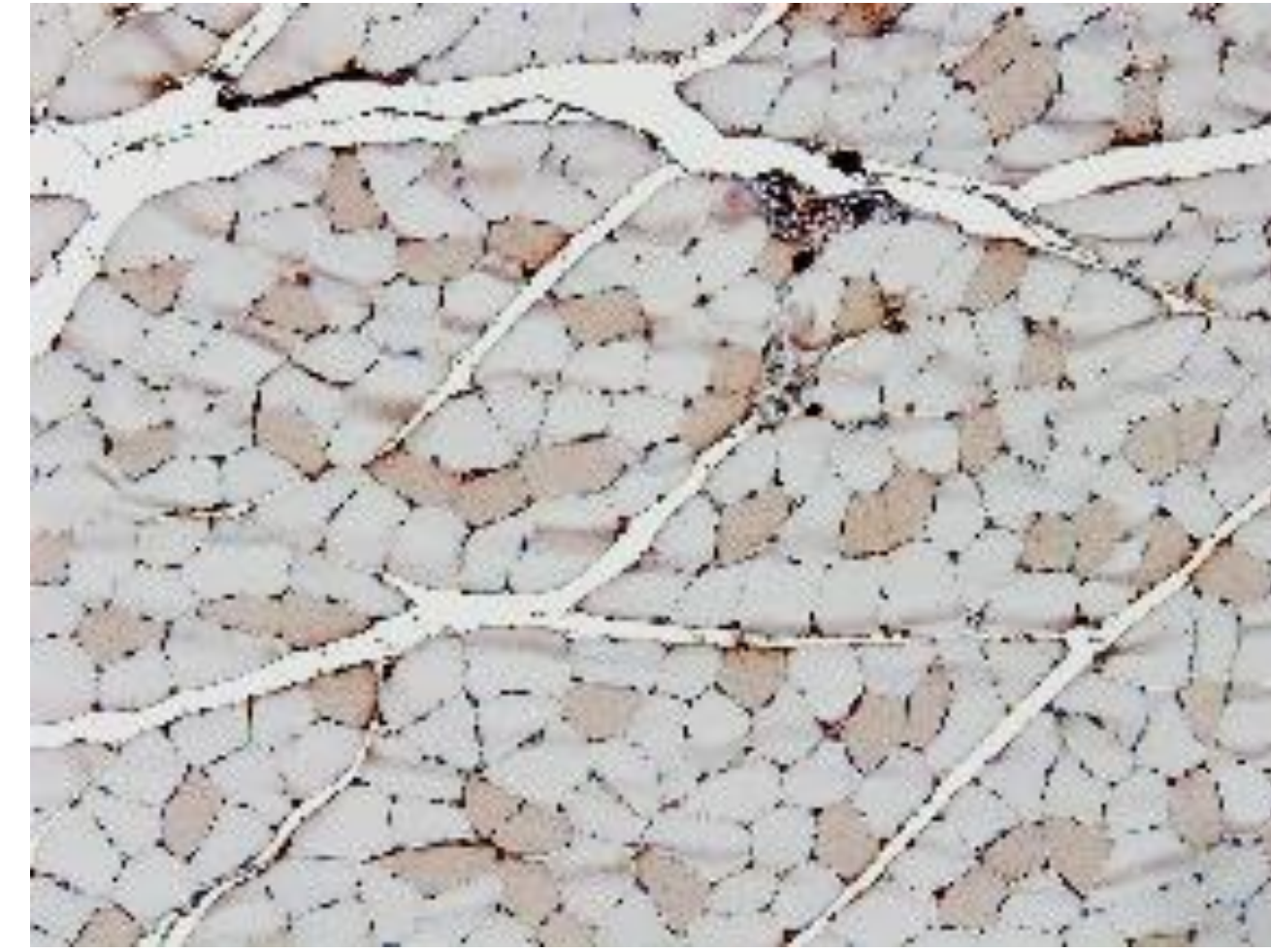
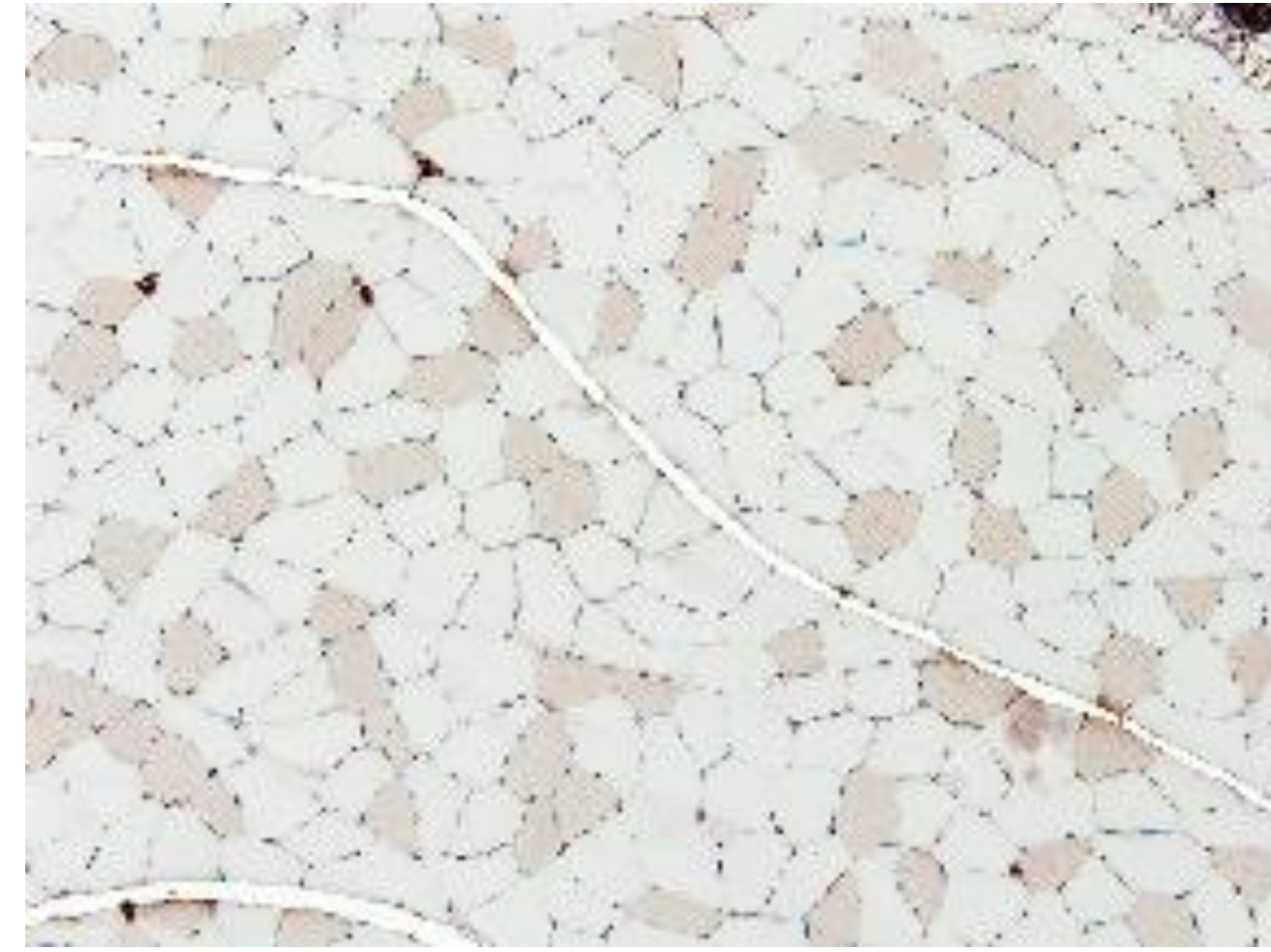
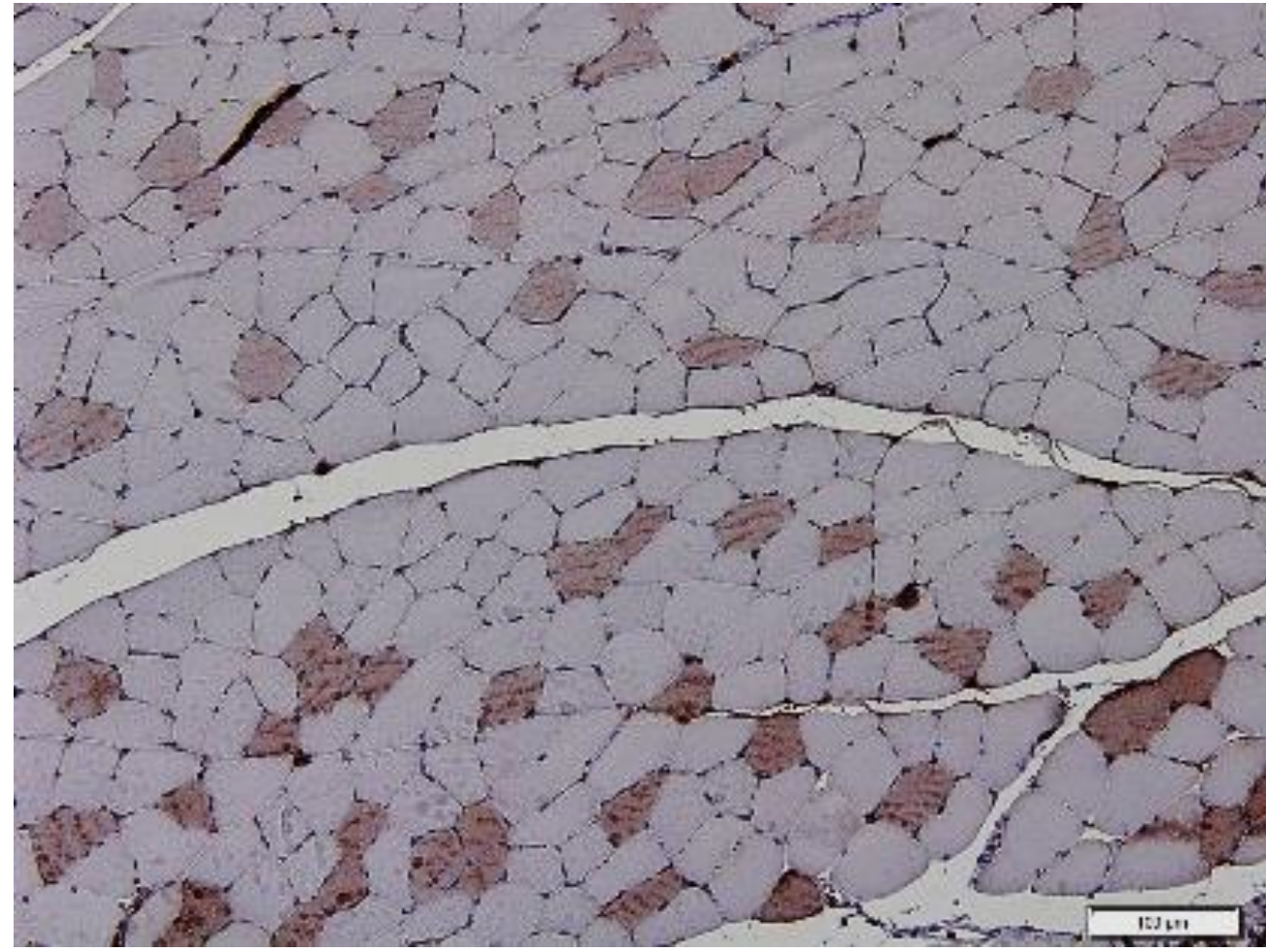
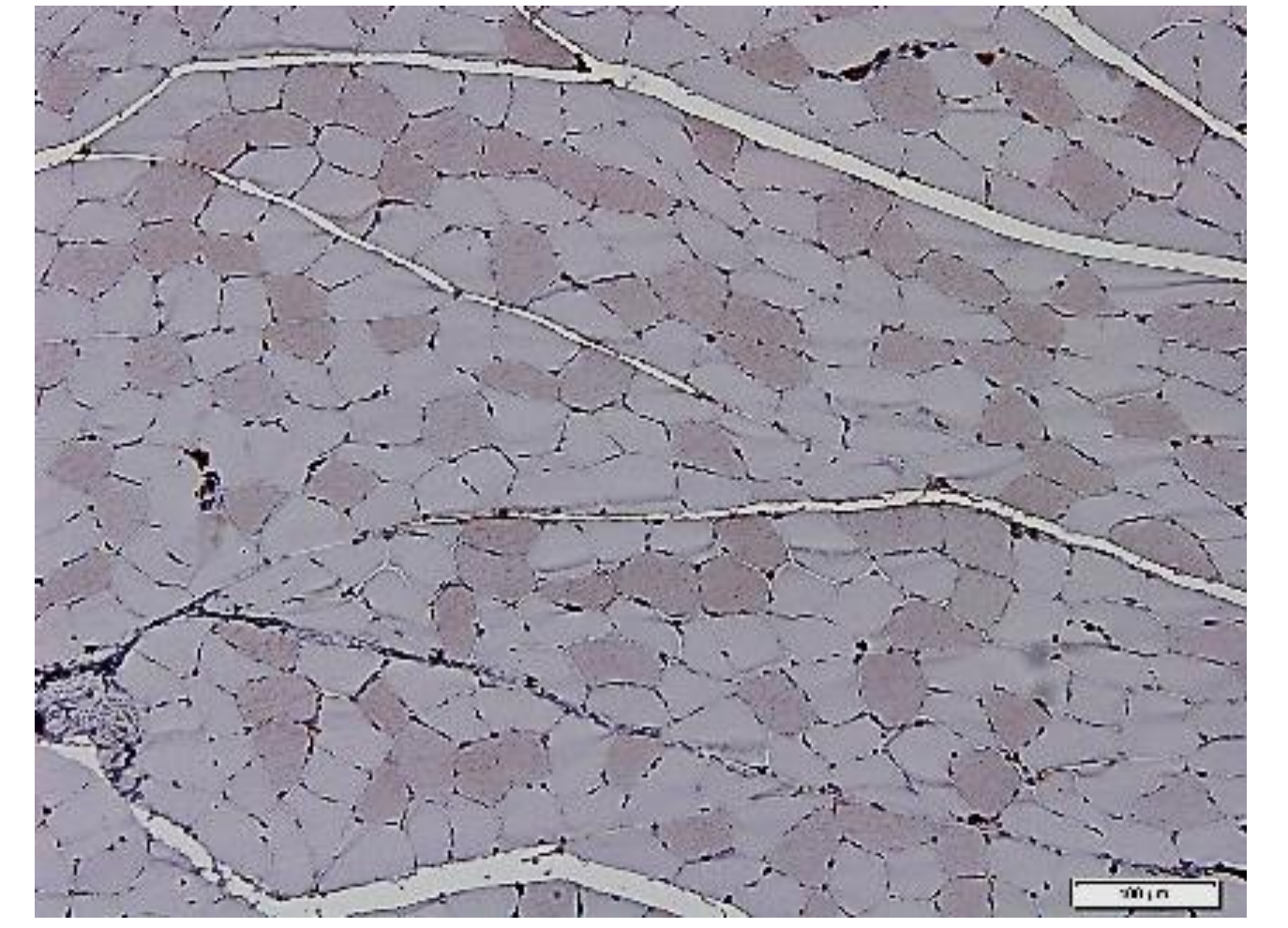
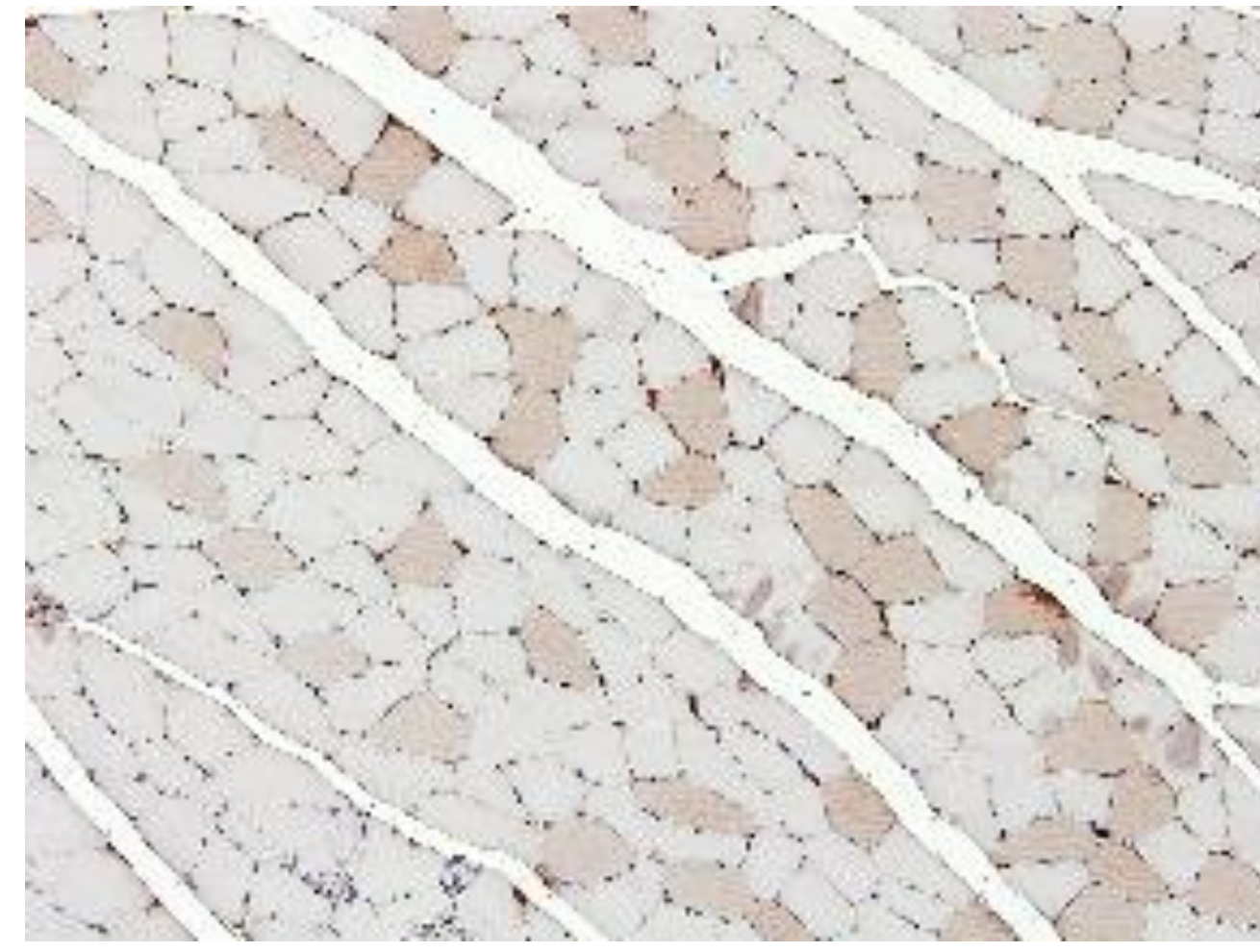
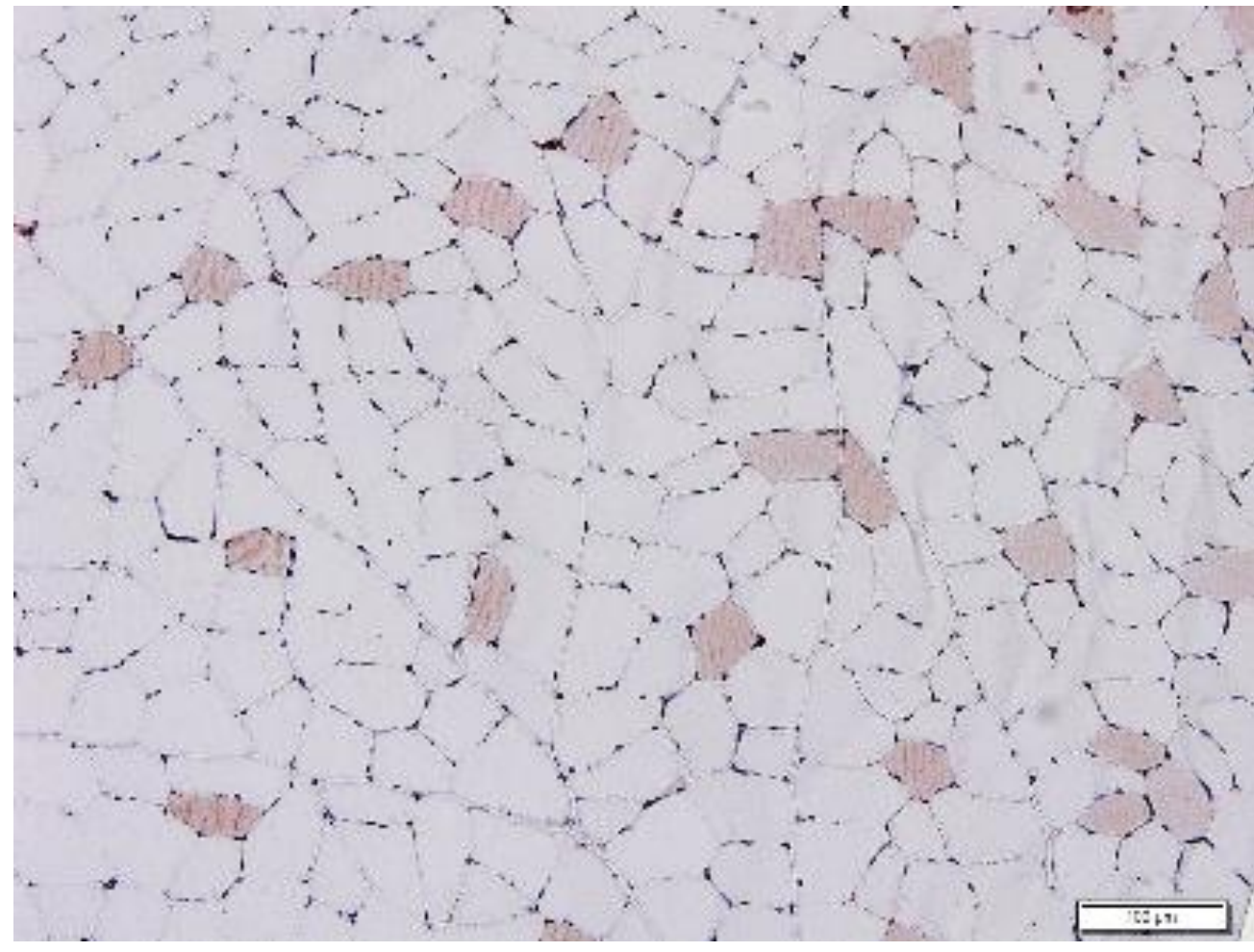
Target gene	Sequence (5' to 3') of forward primer	Sequence (5' to 3') of reverse primer	Reference
GAPDH	ACATTGTTGCCATCAACGAC	CTTGCCGTGGGTAGCGTCAT	Wang R., et al., Cell Metab. (2013) 17, 5, 685-694.
PGC-1 $\alpha$	AAAGGGCCAAGCAGAGAGA	GTAAATCACA CGGCGCTCTT	
COX1	TGGAGCCCCTGATATAGCATTC	CCAGCTTCTACTATGGAGGATGC	Kogot-Levin A., et al., PLoS One. (2016) 11, 10, e0165417.
COX2	GCACAATAGACGCCCAAGAAG	AATTCGTAGGGAGGGAAGGG	
COX4	TGAACAAGGGCACCAATGA	GCCATACACGTAGCTCTTCTC	
COX5B	TCCATACAATATGCTACCTCCAAA	ACAGATGCAGCCCCTATTC	

**Control**

**Leucine**

**B-3L**

**B-3HK**



**Supplemental Figure 1. Histopathological images**

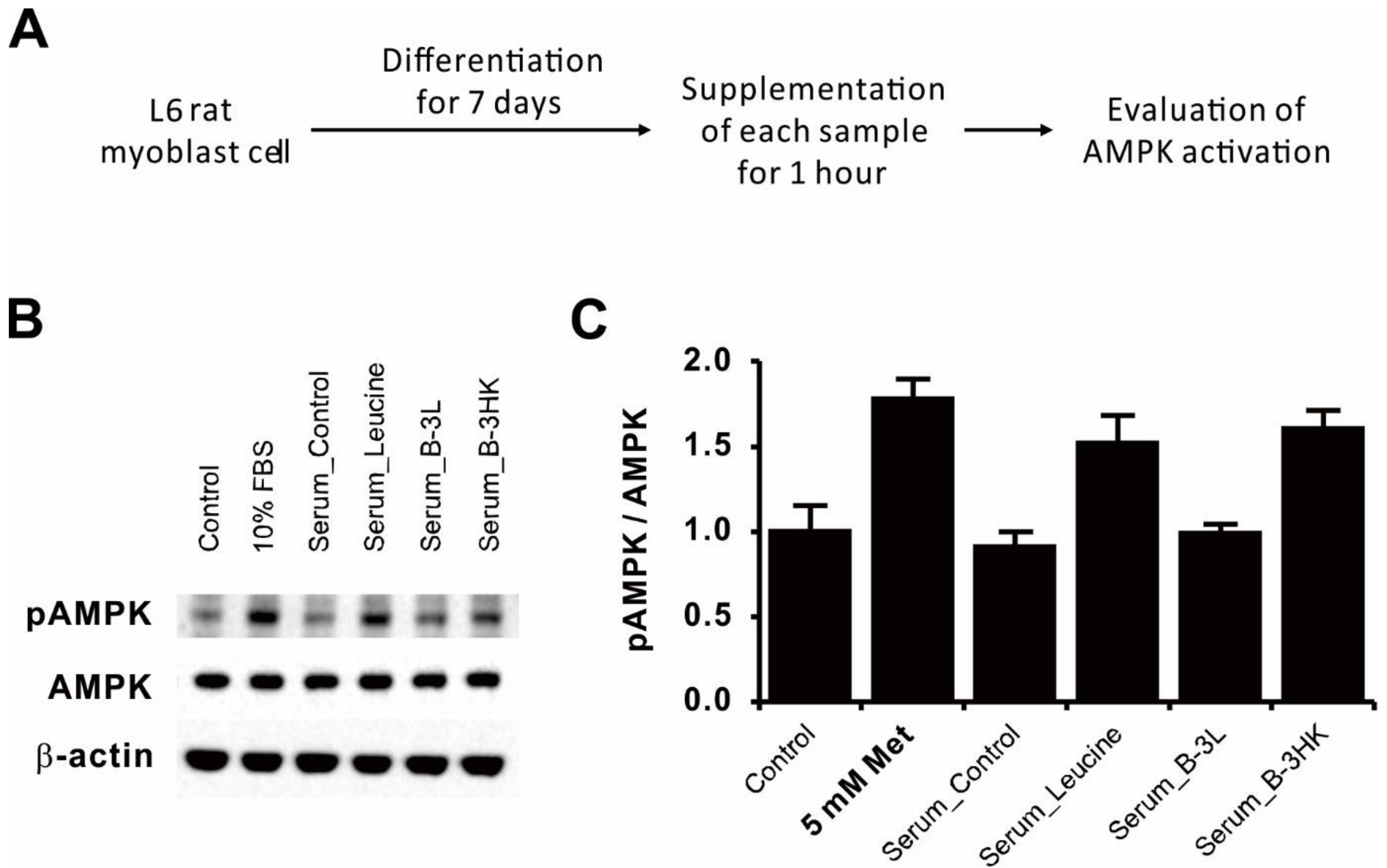
Representative image of immunohistochemistry against SERCA2 ATPase in the rat medial gastrocnemius (n=7).

**Supplemental Table 2. Effects of B-3 on body and tissue weight in the treated mice at 4 weeks.**

		<b>Control</b>	<b>B-3HK</b>	
<b>Body weight (g)</b>	<b>initial</b>	<b>24.02 ± 0.23</b>	<b>24.04 ± 0.18</b>	
	<b>1 week</b>	<b>23.96 ± 0.21</b>	<b>24.21 ± 0.22</b>	
	<b>2 weeks</b>	<b>24.61 ± 0.28</b>	<b>24.48 ± 0.23</b>	
	<b>3 weeks</b>	<b>24.69 ± 0.25</b>	<b>24.49 ± 0.25</b>	
	<b>4 weeks</b>	<b>24.95 ± 0.28</b>	<b>24.56 ± 0.22</b>	
<b>Food intake (g)</b>	<b>initial</b>	<b>4.12 ± 0.45</b>	<b>5.23 ± 0.23</b>	<b>*</b>
	<b>1 week</b>	<b>4.82 ± 0.16</b>	<b>5.09 ± 0.17</b>	
	<b>2 weeks</b>	<b>3.80 ± 0.11</b>	<b>3.80 ± 0.13</b>	
	<b>3 weeks</b>	<b>4.06 ± 0.18</b>	<b>4.34 ± 0.17</b>	
	<b>4 weeks</b>	<b>3.60 ± 0.14</b>	<b>3.44 ± 0.13</b>	
<b>Liver weight (g)</b>		<b>1.20 ± 0.02</b>	<b>1.16 ± 0.03</b>	
<b>Liver weight / body weight (mg/g)</b>		<b>47.93 ± 0.69</b>	<b>47.68 ± 1.20</b>	
<b>Soleus weight (mg)</b>		<b>10.21 ± 0.49</b>	<b>11.98 ± 1.19</b>	
<b>Soleus weight / body weight (mg/g)</b>		<b>0.41 ± 0.02</b>	<b>0.49 ± 0.05</b>	<b>**</b>

The data are presented as the mean and S.E.

Asterisks (\*) denote significant differences from the control group at \*:p<0.05 or \*\*:p<0.01 (*t*-test).



**Supplemental Figure 2. Effects of the rat serum on AMPK activation *in vitro***

(A) Differentiated L6 cells were cultured with samples such as 5 mM metformin (Met, positive control) and 1% (v/v) rat serum for 1h, and then AMPK activation was determined using western blotting. (B) Representative bands and (C) the expression ratio of pAMPK to AMPK are indicated (n=3). The data are expressed as the mean and S.E.