

Supplementary file 1

Deldadeh et al, *BiolImpacts*. 2026;16:33585

doi:10.34172/bi.33585

<https://bi.tbzmed.ac.ir>

COVID-19 vaccination inhibits metastasis in triple-negative breast cancer mice model

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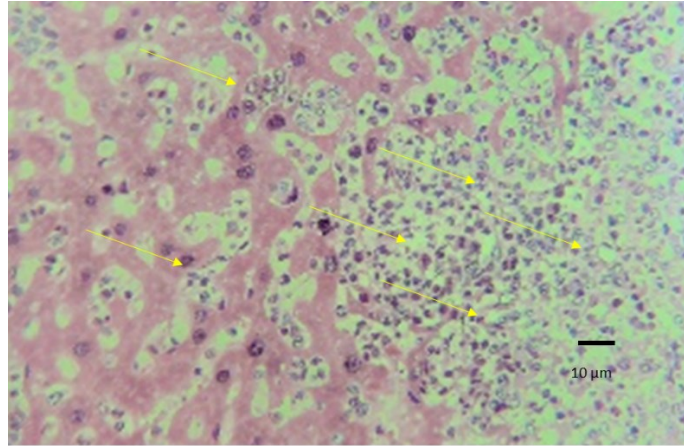
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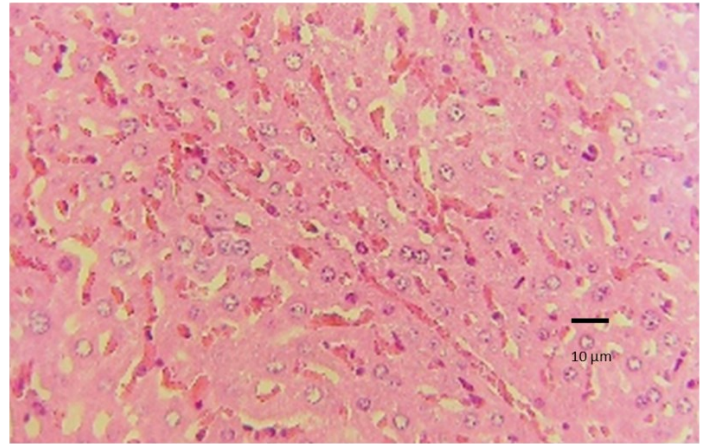
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These authors contributed equally to this work.

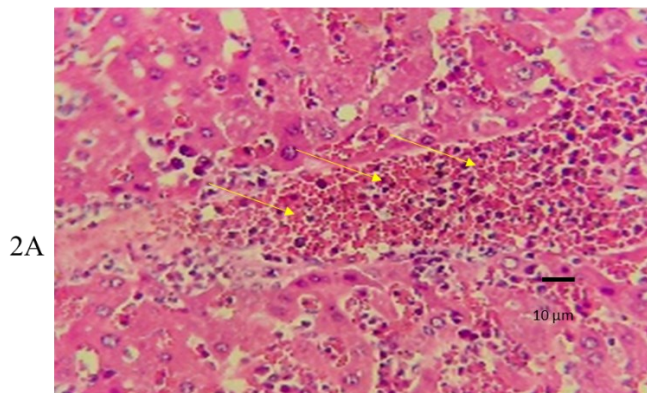
● Liver x400



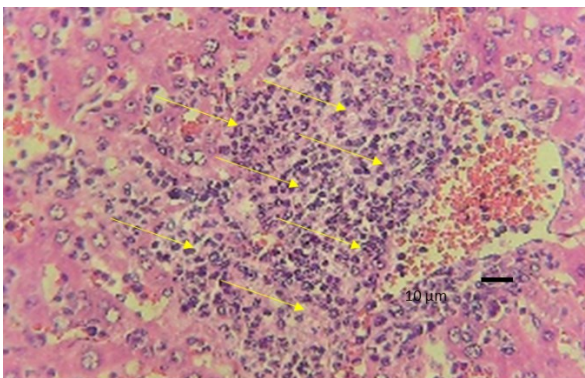
3A



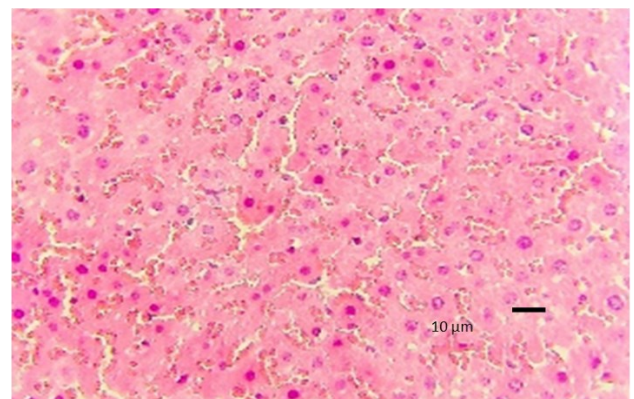
1A



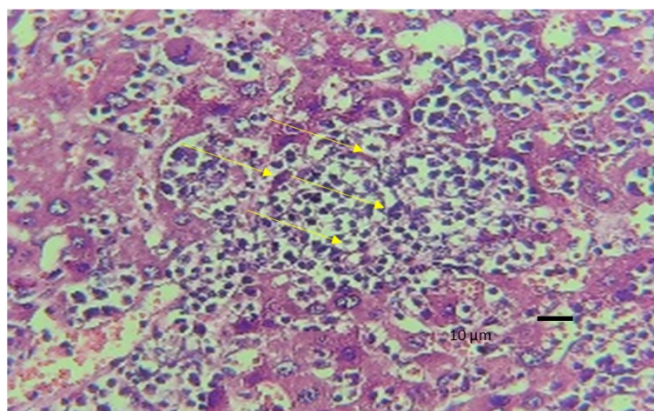
2A



3B

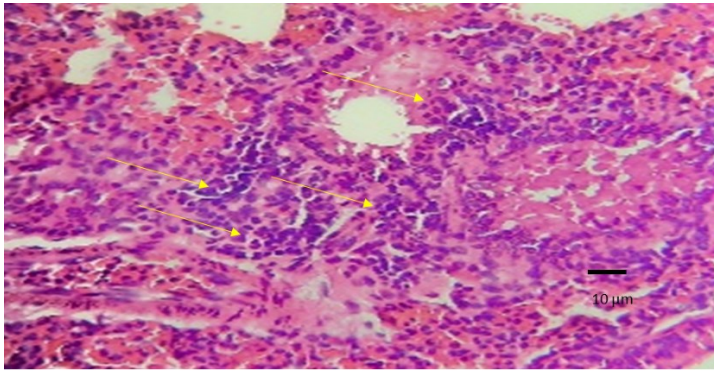


1B

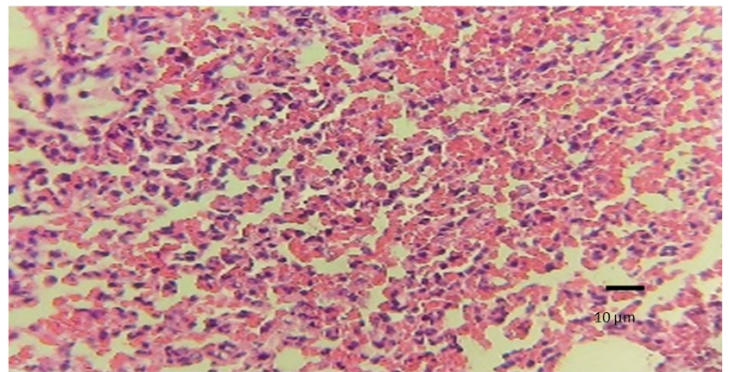


2B

• Lung x400

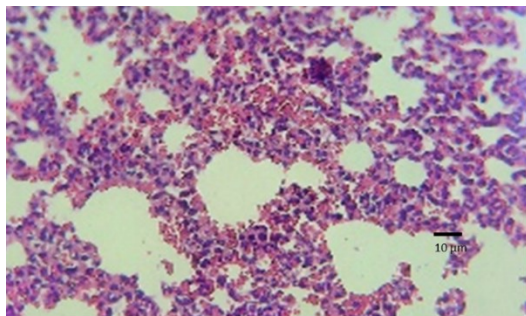
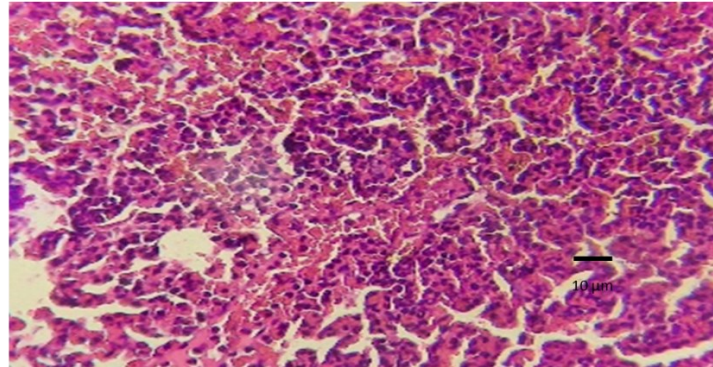


3A

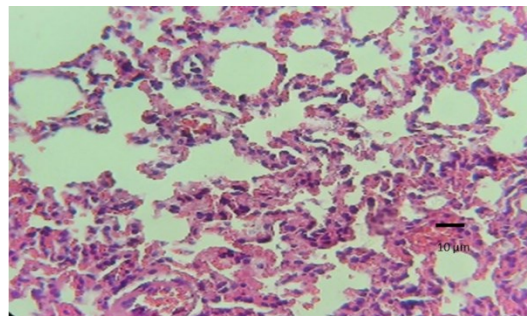


1A

2A



3B



1B

2B

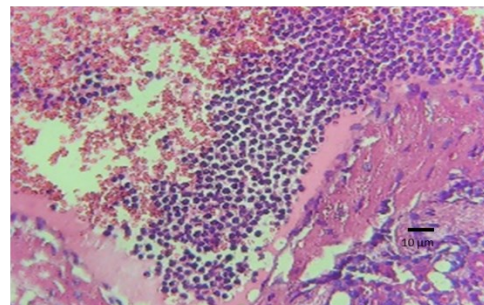
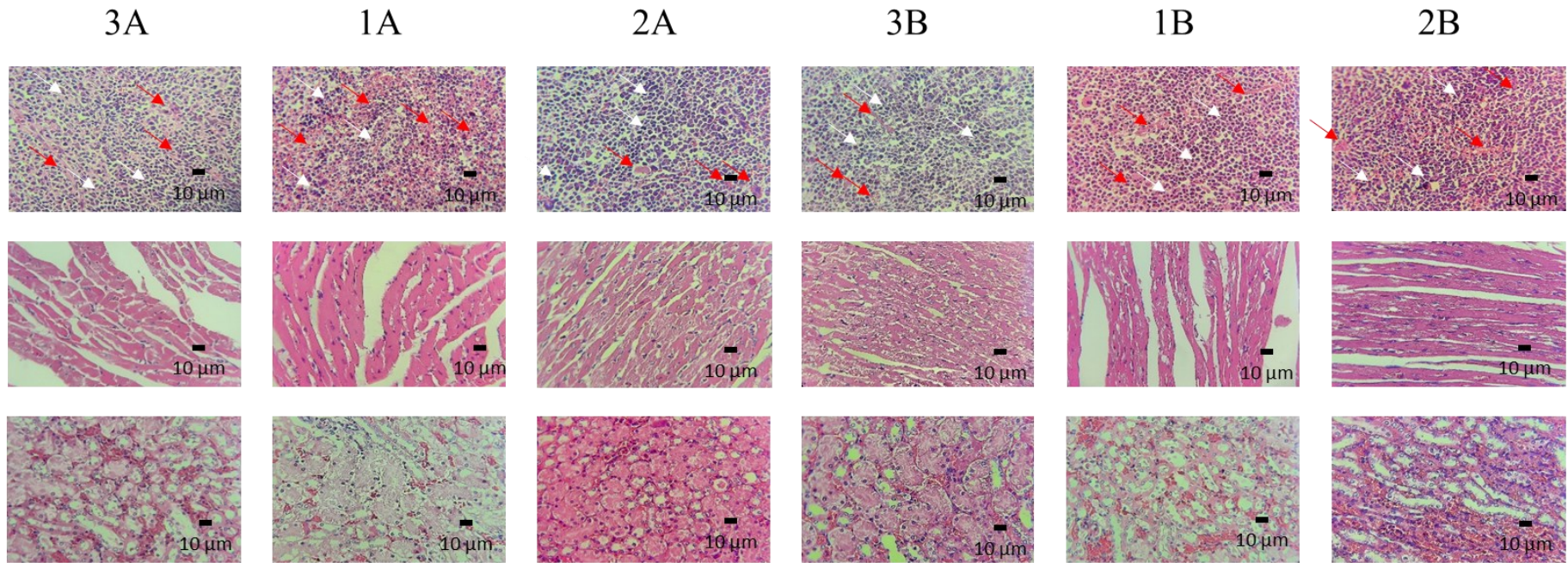


Figure S1- Hematoxylin and eosin staining of the liver and lung tissues, dissected from different groups. As the liver and lungs are the main sites for the breast cancer metastasis, these organs from different groups were dissected and investigated for the possible metastatic lesions. Here, we have tried to demonstrate these organs with higher resolution compared with the that of the figure 3, to be more informative. Metastatic lesions were frequent in the liver and lungs of the control groups. Some signs of the metastatic lesions were seen in the 2A and 2B liver (much less than the control groups). No metastatic lesions were reported in the liver and lungs of the Sinopharm groups.



Red arrows: red pulps

White arrows: White pulps

Figure S2- Hematoxylin and eosin staining from dissected tissues of different groups. To further evaluate the impact of vaccination and/or doses of vaccination, on the metastasis to the different organs, spleen, heart, and the kidney of different vaccinated or the control groups, dissected and assessed for the plausible metastatic lesions. As we can see, there are not significant sign of the metastatic lesions in the mentioned organs. (The white and red pulps in the spleen are shown with the white and red arrows, respectively.)

Table S1- The statistical analysis for the real-time PCR results. The Bonferroni test performed as post hoc test, after the multiple comparison applied.

Real-time PCR

MMP2

Bonferroni's multiple comparisons test	Summary	Adjusted P Value	Bonferroni's multiple comparisons test	Summary	Adjusted P Value
3A vs. 3B	ns	>0.9999	3B vs. 3A	ns	>0.9999
3A vs. 1A	ns	0.6560	3B vs. 1A	ns	0.4264
3A vs. 1B	*	0.0200	3B vs. 1B	*	0.0145
3A vs. 2A	ns	0.1772	3B vs. 2A	ns	0.1179
3A vs. 2B	ns	0.0850	3B vs. 2B	ns	0.1263

MMP9

Bonferroni's multiple comparisons test	Summary	Adjusted P Value	Bonferroni's multiple comparisons test	Summary	Adjusted P Value
3A vs. 3B	ns	>0.9999	3B vs. 3A	ns	>0.9999
3A vs. 1A	***	0.0001	3B vs. 1A	***	0.0002
3A vs. 1B	****	<0.0001	3B vs. 1B	***	0.0002
3A vs. 2A	***	0.0001	3B vs. 2A	***	0.0002
3A vs. 2B	***	0.0003	3B vs. 2B	***	0.0002

E-Cad

Bonferroni's multiple comparisons test	Summary	Adjusted P Value	Bonferroni's multiple comparisons test	Summary	Adjusted P Value
3A vs. 3B	ns	>0.9999	3B vs. 3A	ns	>0.9999
3A vs. 1A	ns	>0.9999	3B vs. 1A	ns	>0.9999
3A vs. 1B	****	<0.0001	3B vs. 1B	****	<0.0001
3A vs. 2A	*	0.0143	3B vs. 2A	**	0.0081
3A vs. 2B	ns	>0.9999	3B vs. 2B	ns	>0.9999

N-Cad

Bonferroni's multiple comparisons test	Summary	Adjusted P Value	Bonferroni's multiple comparisons test	Summary	Adjusted P Value
3A vs. 3B	ns	>0.9999	3B vs. 3A	ns	>0.9999
3A vs. 1A	ns	0.2167	3B vs. 1A	ns	0.1646
3A vs. 1B	*	0.0196	3B vs. 1B	*	0.0158
3A vs. 2A	***	0.0009	3B vs. 2A	***	0.0008
3A vs. 2B	**	0.0014	3B vs. 2B	**	0.0012

Table S2- The statistical analysis for immunohistochemistry results. The Bonferroni test performed as post hoc test, after the multiple comparison applied.

IHC

MMP2

Bonferroni's multiple comparisons test	Summary	Adjusted P Value
3A vs. 1A	*	0.0205
3A vs. 2A	ns	0.4621
3A vs. 3B	ns	>0.9999
3A vs. 1B	*	0.0123
3A vs. 2B	ns	>0.9999

VEGF

Bonferroni's multiple comparisons test	Summary	Adjusted P Value
3A vs. 1A	***	0.0003
3A vs. 2A	ns	0.0653
3A vs. 3B	ns	>0.9999
3A vs. 1B	**	0.0057
3A vs. 2B	*	0.0412

MMP9

Bonferroni's multiple comparisons test	Summary	Adjusted P Value
3A vs. 1A	ns	0.1200
3A vs. 2A	ns	0.9214
3A vs. 3B	ns	>0.9999
3A vs. 1B	*	0.0356
3A vs. 2B	ns	0.9214

Bonferroni's multiple comparisons test	Summary	Adjusted P Value
3B vs. 3A	ns	>0.9999
3B vs. 1A	*	0.0356
3B vs. 2A	ns	0.2326
3B vs. 1B	*	0.0123
3B vs. 2B	ns	0.2326

Bonferroni's multiple comparisons test	Summary	Adjusted P Value
3B vs. 3A	ns	>0.9999
3B vs. 1A	*	0.0123
3B vs. 2A	ns	0.2326
3B vs. 1B	**	0.0076
3B vs. 2B	ns	0.9214