**SUPPORTING INFORMATION**

**Contrast enhanced Photoacoustic detection of fibrillar collagen in the Near Infrared Region-I**

Inna Solomonov, Irene Locatelli, Silvia Tortorella, Manu Unni, Shay-Lee. Aharoni, Elisa Alchera, Erica Locatelli, Mirko Maturi, Chiara Venegoni, Roberta Lucianò, Andrea Salonia, Angelo Corti, Flavio Curnis, Valeria Grasso, Gayathri Malamal, Jithin Jose, Mauro Comes Franchini, Irit Sagi, Massimo Alfano.

- **Figure S1. Summary of physical-chemical properties of GNRs@Chit.**

- **Figure S2. Tissue-derived ECM.**

- **Figure S3. Materials used for the identification of the photoacoustic spectra of collagen in the NIR-II.**

- **Original blots used to make panels 1A and 1D in the manuscript.**
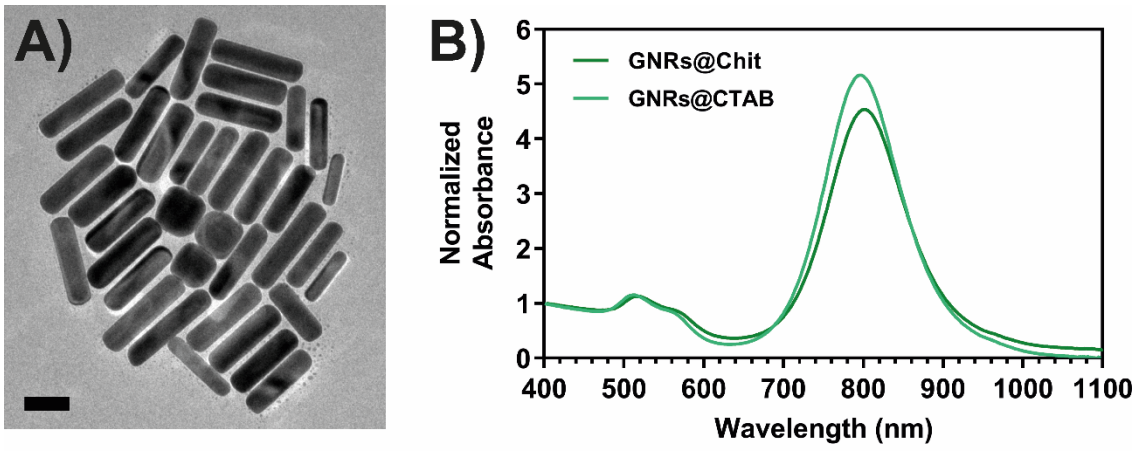
- **References SI**

**Figure S1. Summary of physical-chemical properties of GNRs@Chit.** A) Representative TEM image; B) UV-VIS spectrum of GNRs@CTAB and GNRs@Chit; C) Collected physical-chemical properties. Adapted from reference.[1]
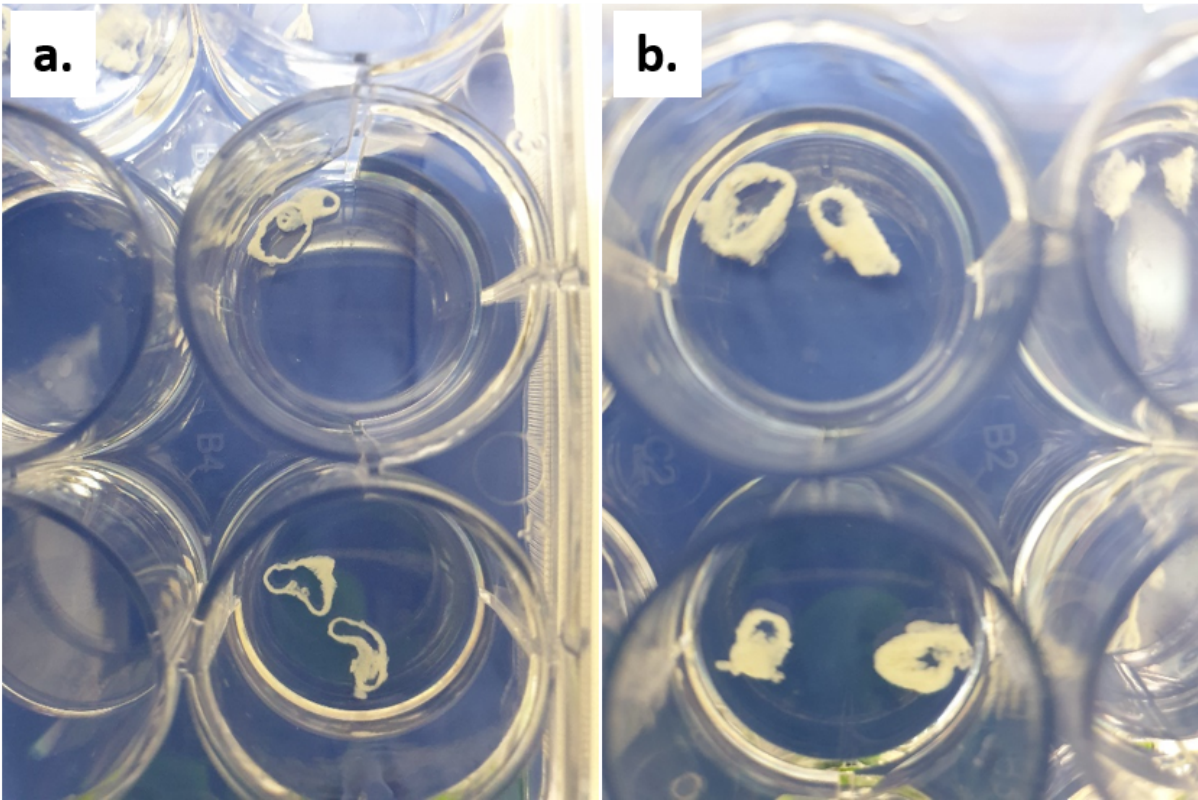
**Figure S2. Tissue-derived ECM.** ECM was derived from healthy rat bladder (a) and rat bladder cancer from the BBN model (b).
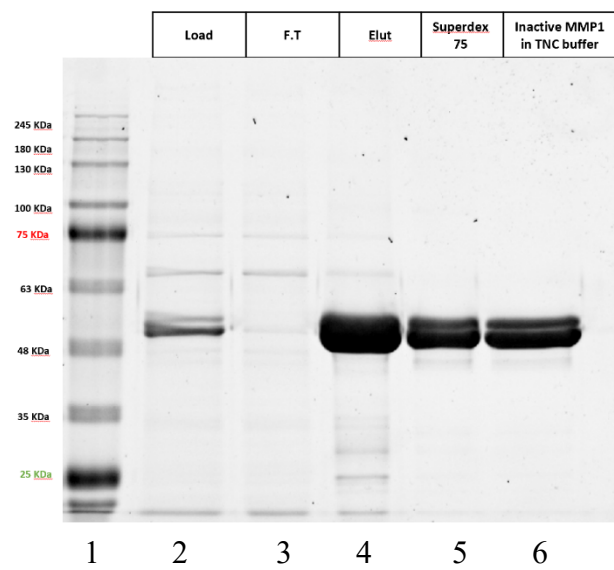
A. Isolation of rat tail tendons

B.



**Figure S3. Materials used for the identification of the photoacoustic spectra of collagen I in the NIR-II.** (A) Tendons isolated from the rat tail, (B) commercial available Spongostan™.

Original blot used to generate Panel 1A in the manuscript.



This is the original SDS-page gel demonstrating the purity of each purification step, as indicated above each lane. From this original gel lane 6 was removed because it is a repetition of lane 5.

Original blot used to generate Panel 1D in the manuscript.
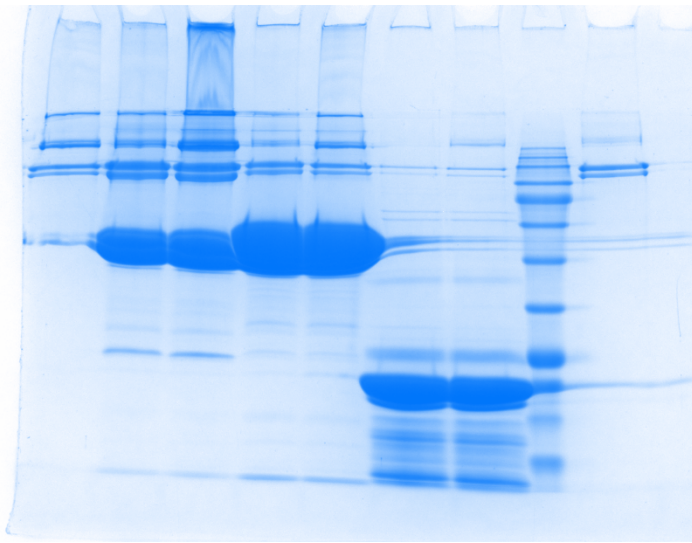


1   2   3   4   5   6   7   8   9

From the left; lane 1, lane 4, lane 5, and lane 9 were removed to make the panel 1D reported in the manuscript. These lanes were removed because the samples are from different preparations that are not the topic of this study. Therefore, lanes 2-3-6-7-8 were rearranged to make panel 1D (including the ladders shown in lane 8).

**References SI**

[1]  Alchera, E.;Monieri, M.;Maturi, M.;Locatelli, I.;Locatelli, E.;Tortorella, S.;Sacchi, A.;Corti, A.;Nebuloni, M.;Luciano, R.;Pederzoli, F.;Montorsi, F.;Salonia, A.;Meyer, S.;Jose, J.;Giustetto, P.;Franchini, M. C.;Curnis, F.; Alfano, M. Early diagnosis of bladder cancer by photoacoustic imaging of tumor-targeted gold nanorods. *Photoacoustics* **2022**, *28*, 100400.