

## Supplementary Material

# A Comprehensive Comparison of Bovine and Porcine Decellularized Pericardia: New Insights for Surgical Applications

Sabra Zouhair <sup>1,†</sup>, Eleonora Dal Sasso <sup>1,†</sup>, Sugat R. Tuladhar <sup>1,†</sup>, Catia Fidalgo <sup>1</sup>, Luca Vedovelli <sup>2</sup>, Andrea Filippi <sup>3,4,5</sup>, Giulia Borile <sup>3,5,6</sup>, Andrea Bagno <sup>7,8</sup>, Massimo Marchesan <sup>1</sup>, De Rossi Giorgio <sup>9</sup>, Dario Gregori <sup>2</sup>, Willem F. Wolkers <sup>10</sup>, Filippo Romanato <sup>3,5,8,11</sup>, Sotirios Korossis <sup>12,13,14</sup>, Gino Gerosa <sup>1,8,§</sup>, and Laura Iop <sup>1,8,§,\*</sup>

<sup>1</sup> Cardiovascular Regenerative Medicine, Department of Cardiac Thoracic Vascular Sciences and Public Health, University of Padua, I-35128 Padua, Italy

<sup>2</sup> Biostatistics, Department of Cardiac Thoracic Vascular Sciences and Public Health, University of Padua, I-35128 Padua, Italy

<sup>3</sup> Department of Physics and Astronomy "G. Galilei," University of Padua, I-35131 Padua, Italy

<sup>4</sup> Fondazione Bruno Kessler, I-38123 Trento, Italy,

<sup>5</sup> Institute of Pediatric Research Città della Speranza, I-35127 Padua, Italy

<sup>6</sup> Department of Biomedical Sciences, University of Padua, I-35131 Padua, Italy

<sup>7</sup> Department of Industrial Engineering, University of Padua, I-35131 Padua, Italy

<sup>8</sup> L.I.F.E.L.A.B. Program, Consorzio per la Ricerca Sanitaria (CORIS), Veneto Region, I-35127 Padua, Italy

<sup>9</sup> ULSS 3 Serenissima, Mestre, I-30174 Venice, Italy

<sup>10</sup> Institute of Multiphase Processes, Leibniz Universität Hannover, D-30167 Hannover, Germany

<sup>11</sup> Laboratory for Nanofabrication of Nanodevices, I-35127 Padua, Italy

<sup>12</sup> Department of Cardiothoracic, Transplantation and Vascular Surgery, Hannover Medical School, D-30625 Hannover, Germany

<sup>13</sup> Lower Saxony Centre for Biomedical Engineering Implant Research and Development, Hannover Medical School, D-30625 Hannover, Germany

<sup>14</sup> Centre for Biological Engineering, Wolfson School of Mechanical, Electrical and Manufacturing Engineering, Loughborough University, LE11 3TU Loughborough, Leicestershire, United Kingdom.

<sup>†</sup> These authors contributed equally.

<sup>§</sup> These authors contributed equally.

\* Correspondence: [laura.iop@unipd.it](mailto:laura.iop@unipd.it); Tel.: +39-049-821-7651

Received: 23 January 2020; Accepted: 17 February 2020; Published: date

**Table 1** Quantification of ECM Components, Water and DNA Contents in Native and Decellularized Pericardia

	<i>NBPs</i>	<i>DBPs</i>	<i>p</i>	<i>NPPs</i>	<i>DPPs</i>	<i>p</i>
<i>HYP</i> ( $\mu\text{g mg}^{-1}$ )	106.60 $\pm$ 3.11	113.26 $\pm$ 1.96	0.0063	114.48 $\pm$ 11.18	121.30 $\pm$ 11.38	0.3667
<i>Denatured HYP</i> ( $\mu\text{g mg}^{-1}$ )	12.06 $\pm$ 6.74	16.66 $\pm$ 8.18	0.9949	5.85 $\pm$ 1.50	4.93 $\pm$ 1.14	0.5435
<i>sGAGs</i> ( $\mu\text{g mg}^{-1}$ )	12.59 $\pm$ 4.10	5.75 $\pm$ 1.01	0.0085	8.15 $\pm$ 2.49	6.15 $\pm$ 1.01	0.1145
<i>Elastin</i> ( $\mu\text{g mg}^{-1}$ )	44.95 $\pm$ 11.12	48.88 $\pm$ 18.36	0.6634	49.55 $\pm$ 6.58	46.42 $\pm$ 11.78	0.5828
<i>Water</i> (%)	81.01 $\pm$ 0.87	83.00 $\pm$ 00.00	< 0.0001	78.36 $\pm$ 2.67	75.26 $\pm$ 0.95	0.0031
<i>DNA</i> ( $\mu\text{g mg}^{-1}$ )	1446 $\pm$ 699.8	66.05 $\pm$ 72.79	0.0046	1774 $\pm$ 385.8	56.47 $\pm$ 40.11	0.0001

Legend: NBP: native bovine pericardium; DBP: decellularized bovine pericardium; NPP: native porcine pericardium; DPP: decellularized porcine pericardium; HYP: hydroxyproline; sGAGs: sulfated glycosaminoglycans.