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SUPPLEMENTARY MATERIAL TO

Maltose-mediated, long-term stabilization of freeze- and spray-dried forms of bovine and porcine hemoglobin

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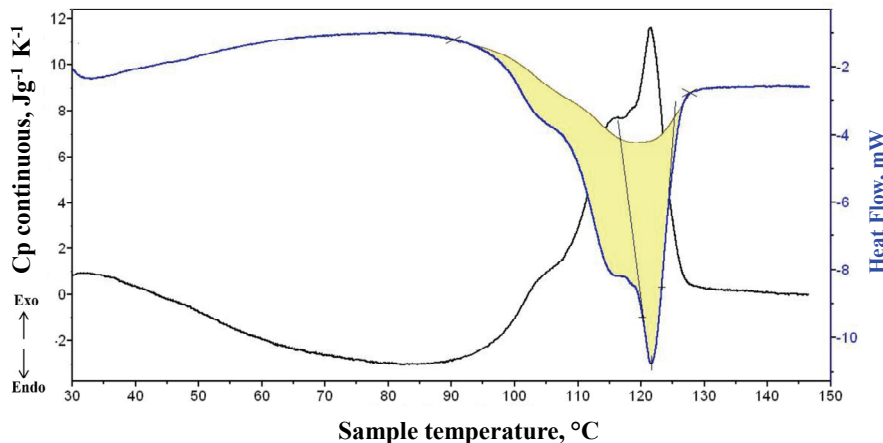
Fig. S-1. DSC thermogram of un-aged amorphous maltose monohydrate showing the glass transition and the enthalpy relaxation endotherm at the glass transition temperature.

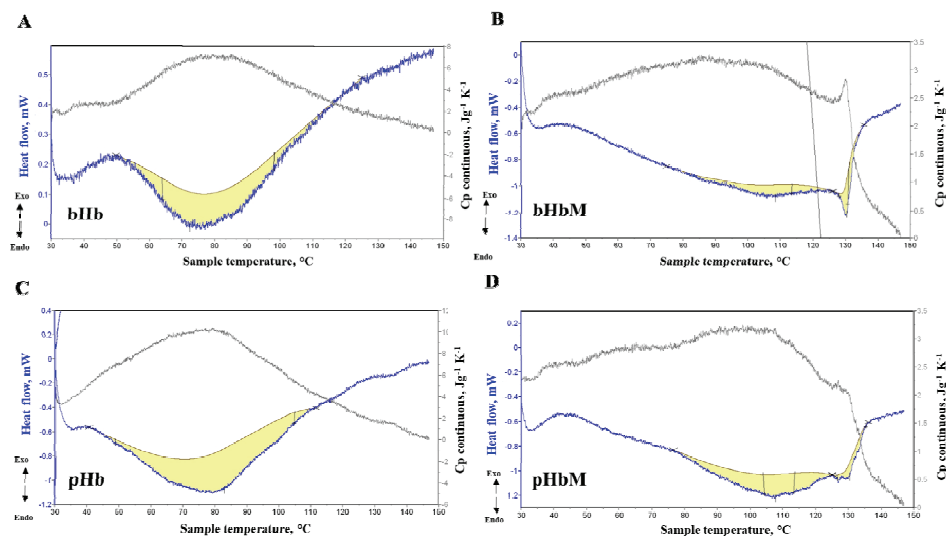* Corresponding author. E-mail: ivana.drvenica@imi.bg.ac.rs

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Fig. S-2. Thermal unfolding and denaturation profile of freeze-dried: A) bovine hemoglobin without maltose (bHb), B) with maltose (bHbM), C) porcine hemoglobin without maltose (pHb) and D) with maltose (pHbM).
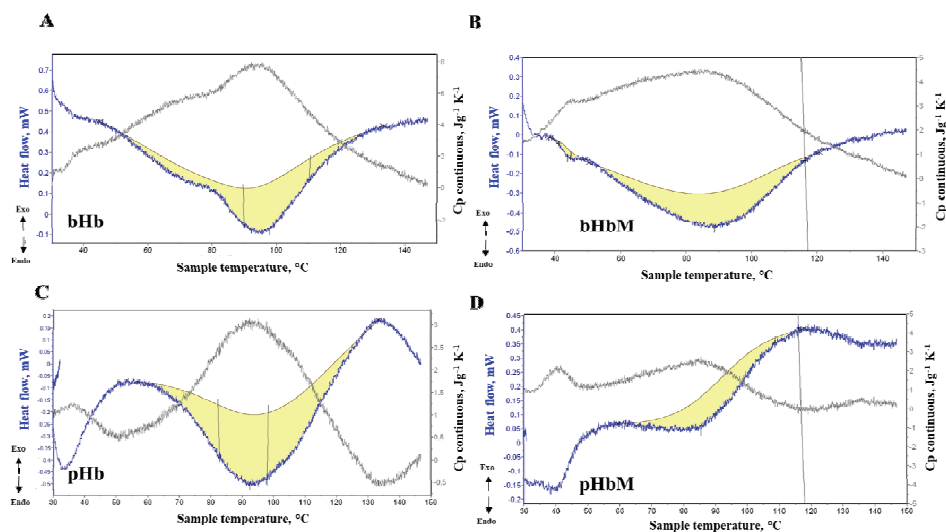

Fig. S-3. Thermal unfolding and denaturation profile of spray-dried: A) bovine hemoglobin without maltose (bHb), B) with maltose (bHbM), C) porcine hemoglobin without maltose (pHb) and D) with maltose (pHbM).

TABLE S-I. Spectral characteristics of spray-dried and freeze-dried pooled bovine and porcine hemoglobin without (Hb) and with maltose (HbM), rehydrated after 2 years storage at ambient temperature. Hemoglobin stored at –20 °C represents a control of the measurement

Sample	Soret band, nm	$\Delta\alpha/\Delta\beta$[a]	$\Delta A_{soret}/A_{275nm}$	$\Delta A_{soret}/A_{577nm}$	A_{630}
Bovine hemoglobin					
Hb –20 °C	410.5	0.94	3.93	11.41	0.012
Hb spray-dried	406.5	0.04	4.27	28.78	0.029
HbM spray-dried	408.5	0.81	3.43	12.90	0.019
Hb lyophilized	405.0	0.05	4.47	30.38	0.027
HbM lyophilized	411.5	0.99	3.35	10.12	0.010
Porcine Hb					
Hb –20 °C	407.5	0.94	3.67	11.73	0.016
Hb spray dried	405.5	0.14	4.20	9.90	0.028
HbM spray dried	406.0	0.61	3.48	10.13	0.024
Hb lyophilized	406.0	0.14	4.09	20.17	0.029
HbM lyophilized	409.0	0.90	3.49	14.11	0.014

[a]$\Delta\alpha/\Delta\beta = (A_{577}-A_{560})/(A_{541}-A_{560})$