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Supplementary information

Antibacterial silver-doped phosphate-based glasses prepared by coacervation

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Table S1: Compositions of the glasses expressed in terms of element weight% based on EDX measurements.

Sample	Elemental composition (weight%)				
	P	**Ca**	**Na**	**Ag**	**O**
G-RT	27.70	14.87	5.23	-	52.17
G-Ag1-RT	24.13	13.63	4.60	1.97	55.67
G-Ag3-RT	24.87	14.07	4.43	6.00	50.67
G-Ag5-RT	23.73	13.53	3.37	8.43	50.93
G-Ag9-RT	20.43	12.20	2.67	14.20	50.50
G-Ag14-RT	22.50	11.00	2.00	22.97	41.50

Table S2: Compositions of the glasses expressed in terms of oxide weight% based on EDX measurements.

Sample	Oxide composition (weight%)				
	P_2O_5	**CaO**	**Na_2O**	**Ag_2O**	**H_2O**
G-RT	62.81	20.58	6.98	0.00	9.63
G-Ag1-RT	54.12	18.67	6.07	2.07	19.08
G-Ag3-RT	56.18	19.41	5.89	6.36	12.16
G-Ag5-RT	53.50	18.63	4.46	8.91	14.50
G-Ag9-RT	45.82	16.71	3.52	14.91	19.02
G-Ag14-RT	51.21	15.29	2.68	24.50	6.32

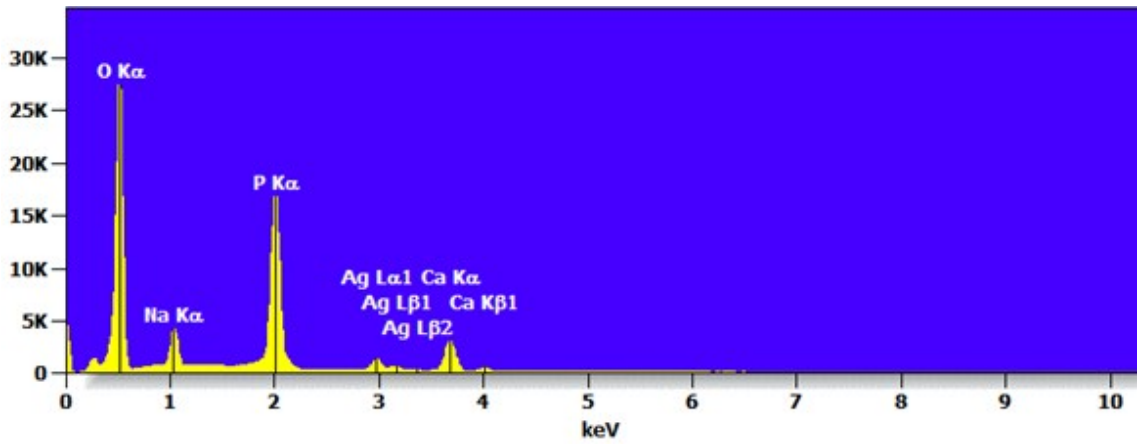

Figure S1: Representative EDX spectrum of a silver doped glass showing the spectral lines used to calculate the compositions of the glasses.

Table S3: Raman spectral bands (cm^{-1}) from of glasses dried at room temperature and calcined at 300 and 400 °C as a function of %mol Ag_2O with assignments.

G-RT	**G-Ag1-RT**	**G-Ag3-RT**	**G-Ag5-RT**	**G-Ag9-RT**	**G-Ag14-RT**	**Assignment**
700	697	697	697	695	695	ν_{sym}(P-O_b), A
893	892	892	890	891	890	ν_{asym}(P-O_b), A
1057	1053	1053	1053	1052	1052	$\nu_{sym}(PO_3)^{2-}_t$, A
1170	1168	1167	1167	1164	1165	ν_{sym}(P-O_t), A
1253	1252	1250	1249	1244	1244	ν_{asym}(P-O_t), A
G-300	**G-Ag1-300**	**G-Ag3-300**	**G-Ag5-300**	**G-Ag9-300**	**G-Ag14-300**	
699	697	699	705	700	701	ν_{sym}(P-O_b), A
892	864	894	896	896	896	ν_{asym}(P-O_b), A
1058	1058	1057	1056	1053	1053	$\nu_{sym}(PO_3)^{2-}_t$, A
1169	1169	1164	1161	1162	1159	ν_{sym}(P-O_t), A
1250	1248	1245	1242	1241	1236	ν_{asym}(P-O_t), A
G-400	**G-Ag1-400**	**G-Ag3-400**	**G-Ag5-400**	**G-Ag9-400**	**G-Ag14-400**	
692	694	691	684			ν_{sym}(P-O_b), A
		719	719	719	717	ν_{sym}(P-O_b), C
		740	741	742	741	ν_{sym}(P-O_b), C
		778	778	779	775	ν_{sym}(P-O_b), C
1044	1059	1042	1043	1048	1044	$\nu_{sym}(PO_3)^{2-}_t$, A
1174	1173	1173	1174	1175	1173	ν_{sym}(P-O_t), A
		1221	1221	1221	1220	$\nu_{asym}(PO_3)^{2-}_t$, C
1259	1253	1252	1251	1249	1245	ν_{asym}(P-O_t), A

A = Amorphous phase. C = Crystalline phase.

Compositional mol% of Ag_2O in G-Ag1-RT

The weight% elemental composition as show in Table S1 was used to calculate the compositional mol% of each atom shown in Table 2. The calculation for mol% Ag_2O for G-Ag1-RT is shown below.

In order to calculate the glass composition, the weight% of each element was obtained from EDX:

Ag weight% = 1.97

This was then used to calculate the oxide weight percentage taking into account the number of each element in its respective oxide form:

Ag_2O weight% = 2.07

From this the mole% of each oxide can be calculated, however as the excess oxygen is assumed to exist as water and not part of the glass network, the mole% should be calculated excluding H_2O:

Ag_2O mol% = <u>1.09</u>

$(P_2O_5)_{0.46}(CaO)_{0.41}(Na_2O)_{0.12}(Ag_2O)_{0.01}.1.29H_2O$