Supplementary Information

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Development of novel aspartic acid based calcium bio-MOF designed for management of severe bleeding

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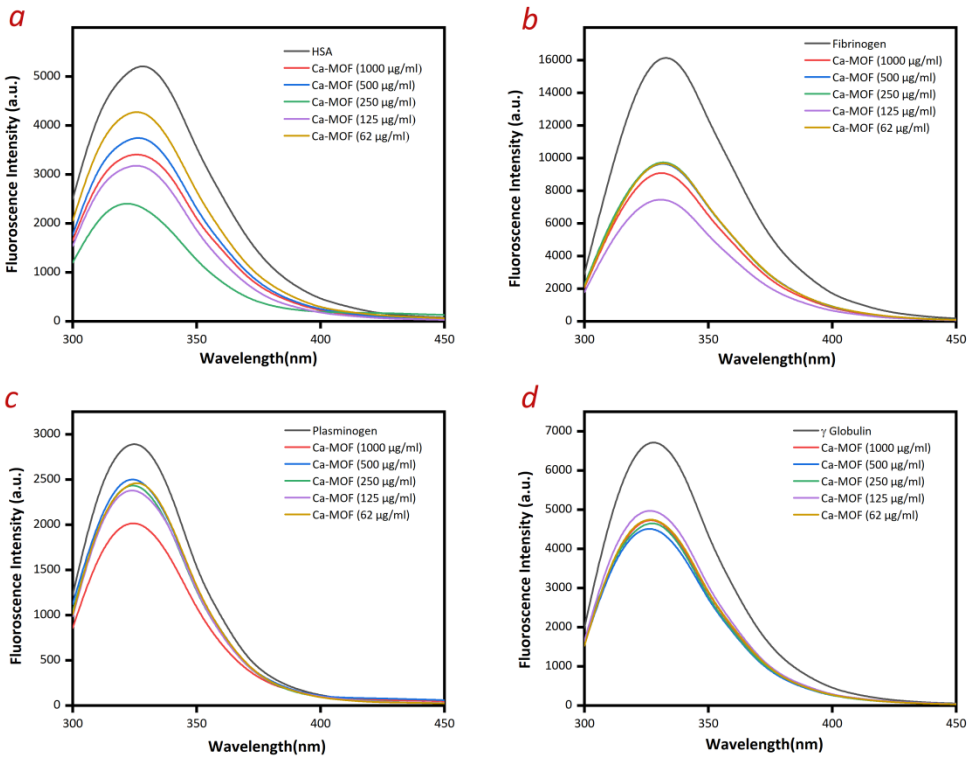

Figure S1: Fluorescence emission spectra of a) HSA b) Fibrinogen c) Plasminogen d) Gamma globulin

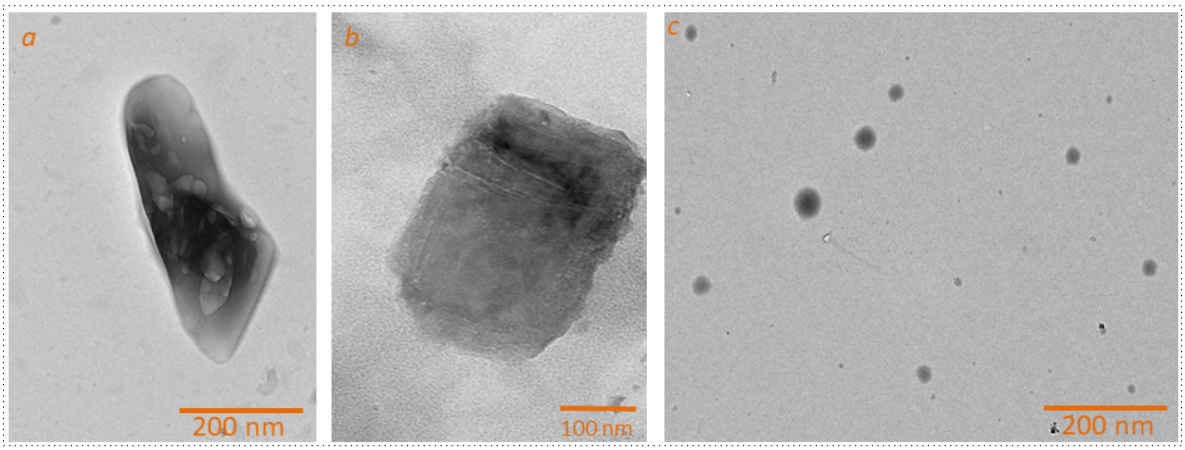

Figure S2: Revised TEM images at different magnifications

ANOVA ANALYSIS

Response 1 : **Reaction Yield**

Table S1. ANOVA for Response Surface Reduced Quadratic model

Analysis of variance table [Partial sum of squares - Type III]

	Sum of		Mean	F	p-value
Source	**Squares**	**df**	**Square**	**Value**	**Prob > F**
Model	207.21	6	34.53	273.40	< 0.0001
A-Ca:L-aspartic acid	*0.000*	*1*	*0.000*	*0.000*	*1.0000*
B-Temp	*60.50*	*1*	*60.50*	*478.96*	*< 0.0001*
C-Time	*40.50*	*1*	*40.50*	*320.63*	*< 0.0001*
BC	*9.00*	*1*	*9.00*	*71.25*	*< 0.0001*
A²	*32.24*	*1*	*32.24*	*255.21*	*< 0.0001*
B²	*59.79*	*1*	*59.79*	*473.36*	*< 0.0001*
Residual	1.26	10	0.13		
Lack of Fit	*1.26*	*6*	*0.21*		
Pure Error	*0.000*	*4*	*0.000*		
Corr Total	208.47	16			

The Model F-value of 273.40 implies the model is significant. There is only a 0.01% chance that an F-value this large could occur due to noise. Values of "Prob > F" less than 0.0500 indicate model terms are significant.

In this case B, C, BC, A^2, B^2 are significant model terms.

Values greater than 0.1000 indicate the model terms are not significant.

If there are many insignificant model terms (not counting those required to support hierarchy),

Model reduction may improve your model.

Table S2

Std. Dev.	**0.36**	**R-Squared**	**0.9939**
Mean	59.82	Adj R-Squared	0.9903
C.V. %	0.59	Pred R-Squared	0.9627
PRESS	7.78	Adeq Precision	52.675
-2 Log Likelihood	4.05	BIC	23.88
		AICc	30.50

The "Pred R-Squared" of 0.9627 is in reasonable agreement with the "Adj R-Squared" of 0.9903; i.e. the difference is less than 0.2. "Adeq Precision" measures the signal to noise ratio. A ratio greater than 4 is desirable. Your ratio of 52.675 indicates an adequate signal. This model can be used to navigate the design space.

	Coefficient		Standard	95% CI	95% CI	
Factor	**Estimate**	**df**	**Error**	**Low**	**High**	**VIF**
Intercept	62.89	1	0.14	62.58	63.21	
A-Ca:L-aspartic acid	0.000	1	0.13	-0.28	0.28	1.00
B-Temp	2.75	1	0.13	2.47	3.03	1.00
C-Time	2.25	1	0.13	1.97	2.53	1.00
BC	1.50	1	0.18	1.10	1.90	1.00
A^2	-2.76	1	0.17	-3.15	-2.38	1.00
B^2	-3.76	1	0.17	-4.15	-3.38	1.00

Final Equation in Terms of Coded Factors:

Reaction Yield	=
+62.89	
+0.000	* A
+2.75	* B
+2.25	* C
+1.50	* BC
-2.76	* A^2
-3.76	* B^2

The equation in terms of coded factors can be used to make predictions about the response for given levels of each factor. By default, the high levels of the factors are coded as +1 and the low levels of the factors are coded as -1. The coded equation is useful for identifying the relative impact of the factors by comparing the factor coefficients.

Final Equation in Terms of Actual Factors:

Reaction Yield	=
-8027.97368	
+2321.05263	* Ca:L-aspartic acid
+128.79474	* Temp
-27.30000	* Time
+0.24000	* Temp * Time
-1105.26316	* Ca:L-aspartic $acid^2$
-0.60211	* $Temp^2$

The equation in terms of actual factors can be used to make predictions about the response for given levels of each factor. Here, the levels should be specified in the original units for each factor. This equation should not be used to determine the relative impact of each factor because the coefficients are scaled to accommodate the units of each factor and the intercept is not at the centre of the design space.