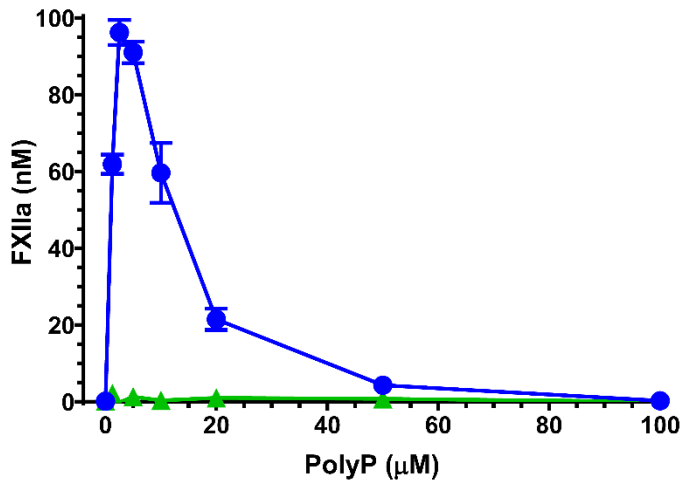


## Supporting Information

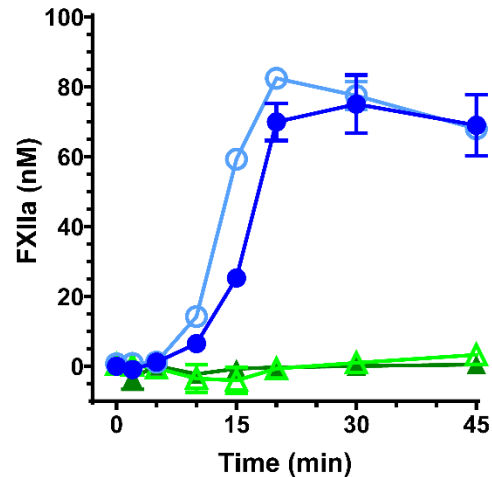
### Polyphosphate, $Zn^{2+}$ and high-molecular-weight kininogen modulate individual reactions of the contact pathway of blood clotting

Yuqi Wang, Ivan Ivanov, Stephanie A. Smith, David Gailani and James H. Morrissey

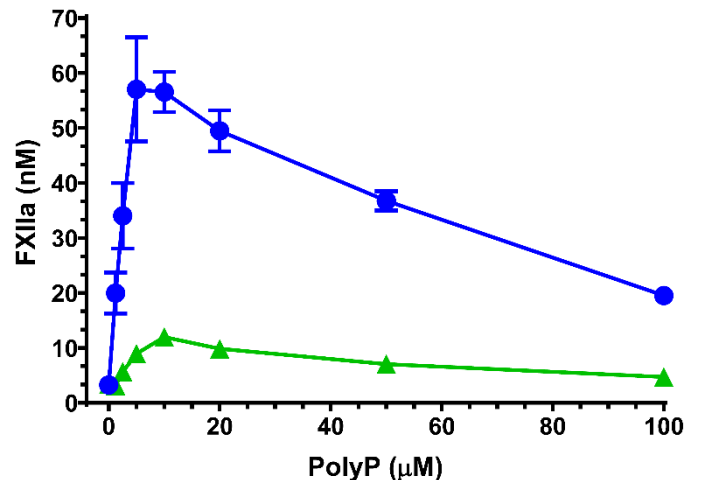
**Figure S1.** Ability of polyP to accelerate FXII autoactivation depends on polyP concentration. In an endpoint assay (stopped at 20 min), 100 nM FXII was incubated with 5  $\mu$ M  $ZnCl_2$  (but without HK) plus varying concentrations of polyP<sub>1200</sub> (●) or polyP<sub>79</sub> (▲). Timed aliquots (10  $\mu$ L) were removed and quenched in 70  $\mu$ L ice-cold Quench Buffer I. Data are mean  $\pm$  S.E. ( $n \geq 3$ ).



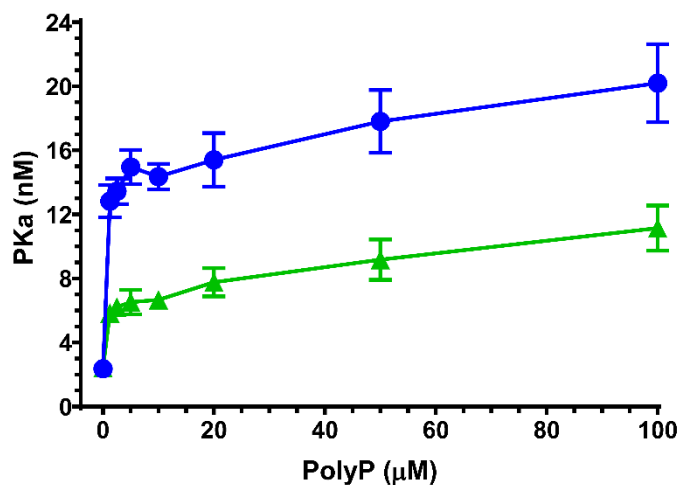
**Figure S2.** Progress curves of polyP-mediated FXII autoactivation. FXIIa levels were measured as a function of time after incubating 100 nM FXII in the presence of 5  $\mu$ M  $ZnCl_2$  (but without HK) plus 2.5  $\mu$ M polyP<sub>1200</sub> (○), 10  $\mu$ M polyP<sub>1200</sub> (●), 10  $\mu$ M polyP<sub>79</sub> (△), or 100  $\mu$ M polyP<sub>79</sub> (▲). Data are mean  $\pm$  S.E. ( $n \geq 3$ ).



**Figure S3.** Ability of long-chain and platelet-size polyP to accelerate FXII activation by PKa depends on polyP concentration. In an endpoint assay (stopped at 4 min), 100 nM FXII and 100 pM PKa were incubated with 10  $\mu$ M  $ZnCl_2$ , 100 nM HK and varying concentrations of polyP<sub>1200</sub> (●) or polyP<sub>79</sub> (▲). Data are mean  $\pm$  S.E. ( $n \geq 3$ ).



**Figure S4.** Ability of long-chain and platelet-size polyP to accelerate PK activation by FXIIa depends on polyP concentration. In an endpoint assay (stopped at 3 min), 100 nM PK and 100 pM FXIIa were incubated with 10  $\mu$ M ZnCl<sub>2</sub> (but without HK) plus varying concentrations of polyP<sub>1200</sub> (●) or polyP<sub>79</sub> (▲). Data in all panels are mean  $\pm$  S.E. ( $n \geq 3$ ).



**Figure S5.** Influence of EDTA on polyP-mediated PK activation by FXIIa. PKa levels were measured as a function of time after incubating 100 nM PK and 100 pM FXIIa (without HK) plus varying concentrations of polyP<sub>1200</sub> in the presence of 0 (●) or 5 (◆) mM EDTA. Initial rates of PK activation (in nM/min) were divided by the FXIIa concentration. Data in are mean  $\pm$  S.E. ( $n \geq 3$ ).

