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Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

- (54) **Title:** APTAMERS THAT BIND THIAMINE ANALOGS AND DERIVATIVES

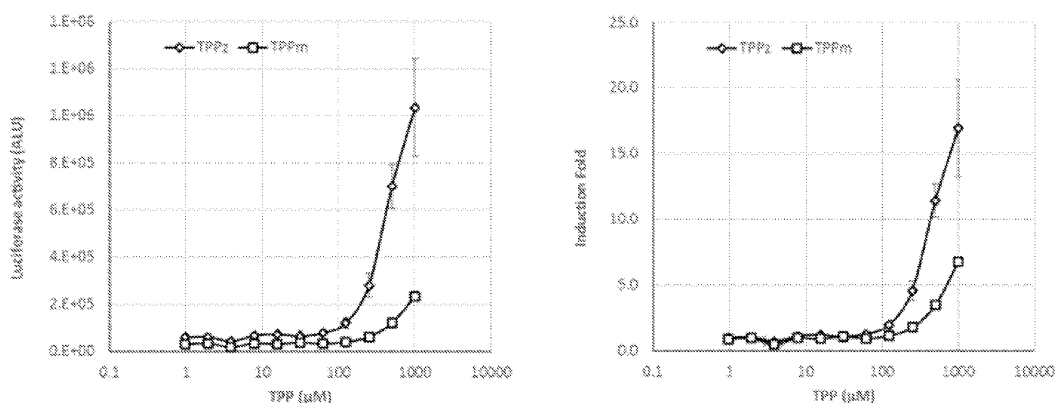


Fig. 1A

- (57) **Abstract:** The present disclosure relates to oligonucleotide aptamers that bind to certain small molecules including thiamine analogs and derivatives and methods of generating aptamers that bind to the small molecules. Also contemplated are riboswitches and polynucleotide cassettes comprising the aptamers disclosed herein. Further provided are methods of using said aptamers, riboswitches, and/or polynucleotide for the regulation of target genes, including therapeutic genes. Also provided herein are small molecules that are modulators of target gene expression where the target gene contains a riboswitch comprising an aptamer described herein.

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