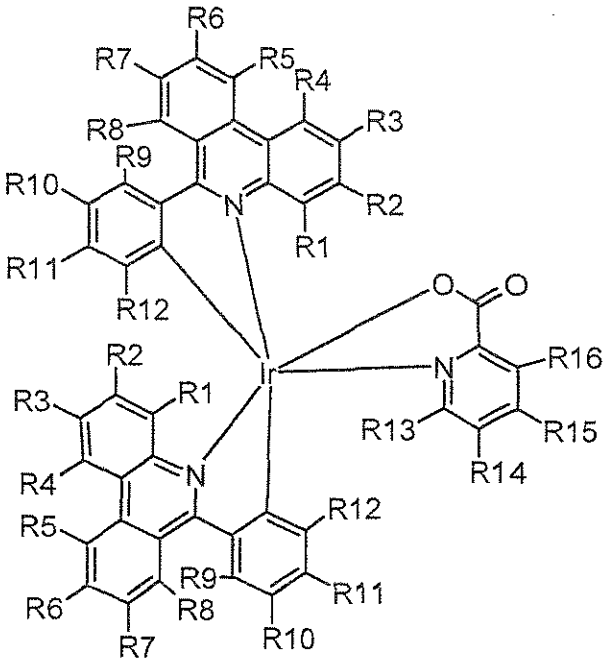
Summary ~~of the Invention~~

The present disclosure, in a first aspect, ~~invention~~ discloses an iridium-based chemiluminescent compound of Formula I



wherein R1-R16 is hydrogen, halide, cyano- or nitro-group, amino, alkylamino, substituted alkylamino, arylamino, substituted arylamino, alkylammonium, substituted alkylammonium, carboxy, carboxylic acid ester, carbamoyl, hydroxy, substituated or unsubstituated alkyloxy, substituted or unsubstituted aryloxy, sulfanyl, alkylsulfonyl, arylsulfonyl, sulfo, sulfino, sulfeno, sulfonamide, sulfoxide, sulfodioxide, phosphonate, phosphinate or R17, wherein R17 is aryl, substituted aryl, alkyl, substituted alkyl branched alkyl, substituted branched alkyl, arylalkyl, substituted arylalkyl, alkylaryl, substituted alkylaryl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, wherein the substituent is selected from hydrogen, halide, cyano- or nitro-group, a hydrophilic group, like amino, alkylamino, substituted alkylamino, alkylammonium, substituted alkylammonium, carboxy, carboxylic acid ester, carbamoyl, hydroxy, substituted or unsubstituated alkyloxy,

substituted or unsubstituted aryloxy, sulfanyl, alkylsulfonyl, arylsulfonyl, sulfo, sulfino, sulfeno, sulfonamide, sulfoxide, sulfodioxide, phosphonate, phosphinate or,

wherein within R1-R12 or/and within R13-R16, respectively, two adjacent Rs can form an aromatic ring or a substituted aromatic ring, wherein the substituent is selected from hydrogen, halide, cyano- or nitro-group, a hydrophilic group, like amino, alkylamino, substituted alkylamino, alkylammonium, substituted alkylammonium, carboxy, carboxylic acid ester, carbamoyl, hydroxy, substituted or unsubstituted alkyloxy, substituted or unsubstituted aryloxy, sulfanyl, alkylsulfonyl, arylsulfonyl, sulfo, sulfino, sulfeno, sulfonamide, sulfoxide, sulfodioxide, phosphonate, phosphinate or,

wherein within R1-R12 or/and within R13-R16, respectively, two adjacent Rs can form an aliphatic ring or a substituted aliphatic ring, wherein the substituent is selected from hydrogen, halide, cyano- or nitro-group, a hydrophilic group, like amino, alkylamino, substituted alkylamino, alkylammonium, substituted alkylammonium, carboxy, carboxylic acid ester, carbamoyl, hydroxy, substituted or unsubstituted alkyloxy, substituted or unsubstituted aryloxy, sulfanyl, alkylsulfonyl, arylsulfonyl, sulfo, sulfino, sulfeno, sulfonamide, sulfoxide, sulfodioxide, phosphonate, phosphinate and

wherein at least one of R13-R16 is –Q-Y, wherein Q represents a linker and Y is a functional group.

The present disclosure, in a second aspect,~~invention~~ also discloses a conjugate comprising the above compound and covalently bound thereto an affinity binding agent.

The present disclosure~~invention~~ further relates to the use of a compound or of a conjugate as disclosed in the present disclosure~~invention~~ for performing a luminescence measurement or an electrochemiluminescence reaction in an aqueous solution, especially, in a electro-chemiluminescent device or electrochemiluminescent detection system.

The present disclosure, in a third aspect, relates to the use of a compound as defined above or of a conjugate as defined above for performing an electrochemiluminescence reaction in an aqueous solution.

The present disclosure, in a fourth aspect, relates to the use of a compound as defined above or of a conjugate as defined above in an electrochemiluminescence based detection method.

The present disclosure, in a fifth aspect, relates to the use of a compound as defined above or of a conjugate as defined above in the detection of an analyte.

Further the present disclosure, in a sixth aspect,~~invention~~ discloses a method for measuring an analyte by an in vitro method, the method comprising the steps of (a) providing a sample suspected or known to comprise the analyte, (b) contacting said sample with a conjugate according to the present disclosure~~invention~~ under conditions appropriate for formation of an analyte conjugate complex, and (c) measuring the complex formed in step (b) and thereby obtaining a measure of the analyte.