filled with a 10 nM solution of Ru(II)(bpy)3 in ORIGEN Assay Buffer (IGEN, International). ECL was excited from the label by ramping the composite electrode from 0 to −0.8 to 2.3 V (vs. Ag/AgCl). The integrated ECL signal measured with a PMT in the absence of mixing was 1332 on a relative intensity scale. Under the same conditions, but with sonication (the piezoelectric transducer turned "on"), the integrated ECL signal was 3086 on a relative intensity scale. Sonication, therefore, caused ECL intensity to more than double.

[0129] Although illustrative embodiments of the present invention and modifications thereof have been described in detail herein, it is to be understood that this invention is not limited to these precise embodiments and modifications, and that other modifications and variations may be effected therein by one skilled in the art without departing from the scope and spirit of the invention as defined by the appended claims.

What is claimed is:

1. An apparatus for use in conducting an electrochemiluminescence binding assay, comprising:

(a) a cell; and

(b) means for sonicating contents of said cell.

2. An apparatus as recited in claim 1, wherein said sonicating means is capable of providing sonication energy at from 0.1 to 5 kHz.

3. An apparatus as recited in claim 1, wherein said sonicating means is capable of providing sonication energy at more than 1,000, kHz.

4. An apparatus as recited in claim 1, wherein said sonicating means has a power of from 0.001 to 10 watts.

5. An apparatus for use in carrying out a binding assay, comprising:

(a) a cell; and

(b) means, structurally coupled to said cell, for sonicating contents of said cell.

6. An apparatus as recited in claim 5, wherein said sonicating means is capable of providing sonication energy at from 0.1 to 10,000 kHz.

7. An apparatus as recited in claim 5, wherein said sonicating means has a power of from 0.001 to 10 watts.

8. An apparatus as recited in claim 5, wherein said assay is an electrochemiluminescence assay.

9. An apparatus for use in conducting an electrochemiluminescence binding assay, comprising:

(a) a cell; and

(b) means, in solid contact with said cell, for sonicating contents of said cell.

10. An apparatus as recited in claim 9, wherein said sonicating means is capable of providing sonication energy at from 0.1 to 10,000 kHz.

11. An apparatus as recited in claim 9, wherein said sonicating means has a power of from 0.001 to 10 watts.

12. An apparatus as recited in claim 9, wherein said apparatus is portable.

13. An apparatus for use in conducting an electrochemiluminescence binding assay, comprising:

(a) a cell including a working electrode; and

(b) means, structurally coupled to said cell, for sonicating contents of said cell.

14. An apparatus as recited in claim 13, wherein said sonicating means is capable of providing sonication energy at from 0.1 to 10,000 kHz.

15. An apparatus as recited in claim 13, wherein said sonicating means has a power of from 0.001 to 10 watts.

16. An apparatus as recited in claim 13, wherein said apparatus is portable.

17. The apparatus according to claim 13, wherein said sonicating means is structurally coupled to said working electrode.

18. The apparatus according to claim 13, wherein said sonicating means comprises a piezoelectric device.

19. The apparatus according to claim 13 further comprising a power supply coupled to said working electrode, for supplying electrical energy to said electrode.

20. The apparatus according to claim 13 further comprising means for detecting luminescence from said cell.

21. The apparatus according to claim 13, wherein a binding reaction occurs at said working electrode.

22. An apparatus as recited in claim 13, wherein said apparatus is for the conduct of an immunoassay a nucleic acid hybridization assay or a receptor ligand binding assay.

23. An apparatus for use in carrying out electrochemiluminescence measurements, comprising:

(a) a cell;

(b) one or more electrodes each of said one or more electrodes having one or a plurality of binding domains, each of said domains containing a reagent capable of binding a component of a binding electrochemiluminescence assay; and

(c) means, structurally coupled to said cell, for sonicating contents of said cell.

24. An apparatus as recited in claim 23, wherein said sonicating means is capable of providing sonication energy at from 0.1 to 10,000 kHz.

25. An apparatus as recited in claim 23, wherein said sonicating means has a power of from 0.001 to 10 watts.

26. An apparatus as recited in claim 23, wherein said apparatus is portable.

27. The apparatus according to claim 23, wherein said sonicating means is structurally coupled to said one or more electrodes.

28. The apparatus according to claim 23, wherein said sonicating means comprises a piezoelectric device.

29. The apparatus according to claim 23 further comprising a power supply coupled to said one or more electrodes, for supplying electrical energy to said electrode.

30. The apparatus according to claim 23 further comprising means for detecting luminescence from said cell.

31. The apparatus according to claim 23, wherein a binding reaction occurs at said one or more electrodes.

32. An apparatus as recited in claim 23 wherein said reagent is selected from the group consisting of antibodies, antibody fragments, enzymes, nucleic acids and receptors.

33. An apparatus for use in carrying out a binding assay, comprising:

(a) a cell including a diaphragm; and

(b) means structurally coupled through said diaphragm to said cell for sonicating contents thereof.