Another aspect of the invention is a kit comprising a device for cauterising tissue according to any aspect of the present invention, and a biopsy and/or sampling instrument.

Brief description of the figures

Figure 1A is a side elevation view of the cauterising device according to one aspect of the invention. Figure 1B is a cross sectional view of Figure 1A.

Figures 2A and 2B are cross sectional views of the cauterising device in the form of a sleeve.

Figures 3A and 3B are cross sectional views of a cauterising device in the form of a sleeve according to another aspect of the invention.

Figures 4A and 4B are the cross sectional views of alternative aspects of the invention, wherein the cauterising device comprises a telescopic assembly.

Figure 5 shows a perspective view of a cauterising device.

Figures 6A and 6B shows a side elevation and Figures 6C, 6D, 6E and 6F show a perspective view of an aspect of the present invention.

Figure 7 illustrates how the cauterising device of the present invention may be mounted on a biopsy and/or sampling instrument.

Figure 8 shows how the cauterising device according to the present invention may be arranged to mask a part of the lateral opening of the biopsy and/or sampling instrument.

Figures 9A, 9B, 9C and 9D show side views of alternatives of a biopsy and/or sampling instrument with means for cauterisation present in the instrument.

Another aspect of the invention is a kit comprising a device for cauterising tissue according to any aspect of the present invention, and a biopsy and/or sampling instrument.

The present invention also provides any one of the embodiments disclosed below and indicated with the numbered clauses 1 to 54.

1. A device for cauterising tissue, the device arranged to be mounted to a biopsy and/or sampling instrument and comprising a conductive cauterising portion and means for heating the cauterising portion.

2. The device according to clause 1, wherein the device is hollow.

3. The device according to any one of clauses 1-2, wherein the cauterising portion has an orifice through which the biopsy and/or sampling instrument extends, optionally said cauterising portion with orifice forming at least a part of a ring.

4. The device according to any one of clauses 1-3, wherein the cauterising portion is at least a part of a conductive material.

5. The device according to any one of clause 4, wherein the conductive material is in the form of any one or a combination of a layer, a cylinder and a wire.

6. The device according to any one of clauses 4-5, wherein the conductive material is further insulated by insulating material, leaving the cauterising portion exposed.

7. The device according to any one of clauses 1-6, wherein the device is in the form of a sleeve.

8. The device according to any one of clauses 1-7, wherein the device is mounted on a shaft of the biopsy and/or sampling instrument.

9. The device according to any one of clauses 1-8, wherein the device is mounted on the biopsy and/or sampling instrument such that the cauterising portion is closer to a distal end of the biopsy and/or sampling instrument.

10. The device according to any one of clauses 1-9, wherein the device is mounted on the biopsy and/or sampling instrument by frictional contact between the biopsy and/or sampling instrument and the device.

11. The device according to any one of clauses 1-10, wherein the device further comprises mounting means for holding the device on the biopsy and/or sampling instrument.

12. The device according to any one of clause 11, wherein the mounting means comprises an O-ring at an interface between the device and the biopsy and/or sampling instrument.

13. The device according to any one of clause 11, wherein the mounting means comprises a locking mechanism between the device and the biopsy and/or sampling instrument, and wherein the mechanism comprises any one or a combination of a press-fit, interference fit or spring loaded mechanism.

14. The device according to any one of clause 11, wherein the mounting means comprises an adhesive layer for adhering the device to the biopsy and/or sampling instrument.

15. The device according to any one of clauses 1-14, wherein the device is mounted permanently onto the biopsy and/or sampling instrument.

16. The device according to any one of clauses 1-14, wherein the device is mounted releasably removable from the biopsy and/or sampling instrument.

17. The device according to any one of clauses 8-16, wherein the device is slidable along the shaft of the biopsy and/or sampling instrument.

18. The device according to any one of clauses 1-17, wherein the means for heating the cauterising portion comprises connection means connecting

the cauterising portion to a power supply for heating the cauterising portion.

19. The device according to any one of clauses 1-18, wherein the means for heating is connected to the conductive material.

20. The device according to any one of clauses 1-19, wherein the device is arranged to mask at least a part of a biopsy and/or sampling lateral opening on the biopsy and/or sampling instrument.

21. The device according to any one of clauses 1-20, wherein the device comprises a telescoping assembly comprising at least two members, wherein the first member is co-operatively engaged with the second member.

22. The device according to any one of clauses 1-21, wherein the thickness of the device is in the range of 0.1-0.5 mm.

23. The device according to any one of clauses 1-22, wherein the device includes a sleeve having a C-shaped cross-section, said sleeve being sufficiently flexible to bend at least a portion of its length away from the instrument, whilst the remaining length remains mounted to said instrument.

24. A method of cauterising tissue comprising the steps of:

- mounting the cauterising device of clauses 1-23 on a biopsy and/or sampling instrument;

- inserting the biopsy and/or sampling instrument into a tissue mass;

- obtaining a sample of said tissue; and

- cauterising the tissue.

25. The method according to clause 24, further comprising the step of masking at least a part of a lateral sampling opening of the instrument between the steps of mounting the cauterising device and inserting the instrument. .

26. The method according to clause 24, further comprising the step of masking at least a part of a lateral sampling opening of the instrument after inserting the instrument.

27. The method according to any one of clauses 24 to 26, further comprising the step of rotating the biopsy and/or sampling instrument such that the cauterising portion of the device is in a predetermined angular orientation.

28. The method according to any one of clauses 24 to 27, further comprising the step of cauterising the tissue while sliding the biopsy and/or sampling instrument within the tissue mass.

29. The method according to any one of clauses 24 to 28, wherein the tissue is mammalian tissue.

30. The method according to clause 29, wherein the mammalian tissue is human tissue.

31. The method according to clause 30, wherein the human tissue is breast tissue.

32. A method of cauterising tissue comprising the steps of:

- mounting the cauterising device of clauses 1-23 to a biopsy and/or sampling instrument after the instrument has been removed from the body after a biopsy and/or tissue sampling;

- inserting the biopsy and/or sampling instrument into a tissue mass which has been sampled; and

- cauterising the tissue.

33. The method according to clause 32, further comprising the step of rotating the biopsy and/or sampling instrument such that the cauterising portion of the device is in a predetermined angular orientation.

34. The method according to clause 32 or 33, further comprising the step of cauterising the tissue while sliding the instrument within the tissue mass.

35. The method according to any one of clauses 32 to 34, wherein the tissue is mammalian tissue.

36. The method according to clause 35, wherein the mammalian tissue is human tissue.

37. The method according to clause 36, wherein the human tissue is breast tissue.

38. A biopsy and/or sampling instrument for obtaining tissue samples and cauterising the remaining tissue comprising:

- means for sampling tissue;

- a lateral opening for receiving the tissue samples;

- a conductive cauterising portion; and

- means for heating the cauterising portion.

39. The instrument according to clause 38, wherein the means for sampling comprises the conductive cauterising portion.

40. The instrument according to clause 39, wherein the conductive cauterising portion comprises a cutting member for cutting a sample of the tissue, said

cutting member being internal to, and co-axial with, an insertion shaft of the instrument;

and a power supply connection attached to said cutting member to facilitate the means for heating the cauterising portion.

41. The instrument according to any one of clauses 38 to 40, wherein the cauterising portion is between a distal end of the biopsy and/or sampling instrument and the lateral opening for receiving the tissue sample.

42. The instrument according to any one of clauses 38 to 41, wherein the cauterising portion is at least a part of a ring around the means for sampling.

43. A method of obtaining tissue samples and cauterising the remaining tissue comprising the steps of:

- introducing a biopsy and/or sampling instrument according to any one of clauses 38 to 42 into a tissue mass to be sampled;

- severing a tissue sample from the tissue mass which has entered a lateral opening of the instrument;

- transporting the severed tissue sample to a proximal end of the instrument;

- depositing the severed tissue sample; and

- cauterising the tissue.

44. The method according to clause 43, further comprising the step of rotating the instrument such that the cauterising portion of the instrument is in a predetermined angular orientation.

45. The method according to clauses 43 or 44, further comprising the step of cauterising the tissue while removing the instrument from the tissue mass.

46. The method according to any one of clauses 43 to 45, wherein the tissue is mammalian tissue.

47. The method according to any one of clause 46, wherein the mammalian tissue is human tissue.

48. The method according to any one of clause 47, wherein human tissue is breast tissue.

49. A kit comprising a device for cauterising tissue according to clauses 1-23 and a biopsy and/or sampling instrument.

50. A method of assembly of an instrument for cauterising tissue comprising the steps of: attaching a sheath to a shaft of a biopsy and/or sampling instrument and connecting a diathermy pin to the instrument to cauterise a tissue.

51. The method according to clause 50, wherein the sheath is an insulating sheath.

52. The device according to clause 23, wherein the uncompleted part of the cross-section of the sleeve forms a gap in the sleeve, and wherein at least part of the gap is closed by a resilient member.

53. The device according to clause 52, wherein the resilient member is at least one elastic band.

54. The device according to clause 52, wherein the resilient member is an interwoven elastic fabric.

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