disposed on said first side of said base portion and configured to hold a sample, said base portion of said cuvette comprising an optically transmissive material, and said cover portion comprising at least one flat reflective surface parallel with said first side of said base portion, wherein said optically transmissive surface and said at least one flat reflective surface are configured effective that light passing through the second side of said base portion prior to passing through said first side of said base portion is effective to directly illuminate said sample chamber with light provided by said illumination source, and wherein some of said light so provided by said illumination source passes further and is reflected by said flat reflective surface effective to indirectly illuminate said sample chamber light provided by said illumination source; wherein said sample holder is configured effective that said light from said illumination source simultaneously provides both epi-illumination and trans-illumination to said sample in the sample chamber, where epi-illumination comprises light traveling from said illumination source to the sample without reflection at a surface of the optically transmissive material, and where trans-illumination comprises light traveling within the optically transmissive material and to the sample following at least one reflection from at least one flat reflective surface of said optically transmissive material. Also disclosed herein is a method of identifying a cell in a sample containing a plurality of cells, comprising: (a) placing said sample in a sample holder comprising a sample chamber comprising an elongated channel configured to hold the sample, at least a portion of said sample holder comprising an optically transmissive material, said optically transmissive material comprising an optically transmissive surface and at least one flat reflective surface, wherein said optically transmissive surface and said at least one flat reflective surface are configured effective that light passing through the optically transmissive surface simultaneously provides both epi-illumination and trans-illumination to the sample in the sample chamber, where epi-illumination comprises light traveling from said illumination source to the sample without reflection at a flat reflective surface of the optically transmissive material, and where transillumination comprises light traveling within the optically transmissive material and to the sample following at least one reflection from at least one flat reflective surface of said optically transmissive material; (b) illuminating said sample holder effective to simultaneously provide both epi-illumination and trans-illumination of the sample; and (c) identifying a cell in the sample.

[0004] Examples disclosed herein include sample holders suitable for holding samples, including biological samples, for optical examination, for optical measurement, and for other examinations and measurements. In examples, a sample holder having an optically transmissive portion and a portion configured to provide internal reflection of light within the sample holder is provided. In examples, internal reflections may include partial internal reflection and may

31. The cuvette of claim 28, wherein said trans-illumination is provided at least in part by total internal reflection of light at a flat reflective surface.

32. The cuvette of claim 28, wherein the cuvette comprises two or more sample chambers for holding sample.

33. The cuvette of claim 28, comprising a cross-sectional shape selected from rectangular horizontal cross-sectional shape and a circular horizontal cross-sectional shape.

34. The cuvette of claim 28, comprising a cross-sectional shape selected from a saw tooth vertical cross-sectional shape and a step-shaped vertical cross-sectional shape.