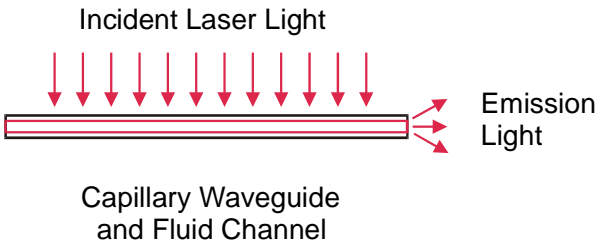


<b>Title:</b>	<b>Design of Integrating Waveguide Biosensor</b>
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<b>Abstract:</b> (Your abstract <u>must</u> use Normal style and <u>must</u> fit in this space. Your abstract should be no longer than 300 words. This space will 'expand' over 2 pages as you add text/diagrams into it.)	<p>The Integrating Waveguide Biosensor allows for rapid and sensitive detection of pathogenic agents and proteins via an immunoassay and of PCR products. The analytes are captured on the surface of the waveguide and then tagged with fluorescent labels. The waveguides are illuminated with excitation light at a 90 angle. The emitted light from the fluorescent labels on the surface of the waveguide is efficiently collected and channeled to the detector, while minimizing interference from the excitation light, as shown in Figure 1.</p> <p>A compact instrument design using capillary tubes as waveguides will be presented. Two versions of the instruments were developed: (1) a portable version using Cy5 fluorescent dye in conjunction with a 635 nm diode laser and photomultiplier tube detector and (2) a portable version using various fluors in conjunction with an interchangeable laser source for excitation of the different fluorescent labels and a spectrometer as detector.</p> <p>The Integrating Waveguide Biosensor can detect 10 pg/ml of mouse IgG, 10 cells of <i>E. coli</i> O157 and <i>Salmonella</i> using Cy5 and 1 cell of <i>E. coli</i> O157 using quantum dots.</p> <div data-bbox="483 1192 1117 1570" style="border: 1px solid black; padding: 10px; margin: 10px 0;">  <p style="text-align: center;">Incident Laser Light</p> <p style="text-align: center;">Emission Light</p> <p style="text-align: center;">Capillary Waveguide and Fluid Channel</p> <p>Figure 1. Basic principle of the Integrating Waveguide Biosensor.</p> </div>