**A novel lateral flow immunoassay for celiac disease detection**

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**Introduction**. Celiac disease is a chronic auto-immune response, triggered under the ingestion of gluten protein from wheat, rye and barley[1], resulting in damage to the delicate lining of the small intestine—the ‘villi’, among the gene carriers of human leukocyte antigen predisposing-genotypes (HLA-DQ2/8)[2]. Recent scientific results show that the population of celiac patients is increasing, up to 1% of the world population affected by the disease[3]. However, only 17% has been diagnosed, the rest remains undiagnosed or misdiagnosed[4]. Therefore, the timely detection for celiac disease is pretty important to potential patients.

**Aims.** To develop a low cost point-of-care testing device for celiac disease on-site screening detection.

**Methods.** A lateral flow immunoassay to test antibody of celiac disease to diagnose celiac disease with the serum and saliva samples based on celiac antigen. Colloidal gold conjugate with a capture protein, which can combine with antibody from the sample, as the conjugate reagent. Celiac antigen, which can absorb the specific celiac antibody was used as the test line, and primary antibody from human as the control line. These two red lines represent a positive result. An only red line appeared on the control line means the negative result. Neither of the two lines becomes red, or the only test line turns red means invalid results.

**Results & Discussion.** Colloidal gold can conjugate with the capture protein very well. The limit of detection of good with the spiked antibody solution. In addition, this lateral flow immunoassay can achieve the detection of celiac disease with serum and saliva samples. The following picture shows the negative and positive results. (Fig.1)

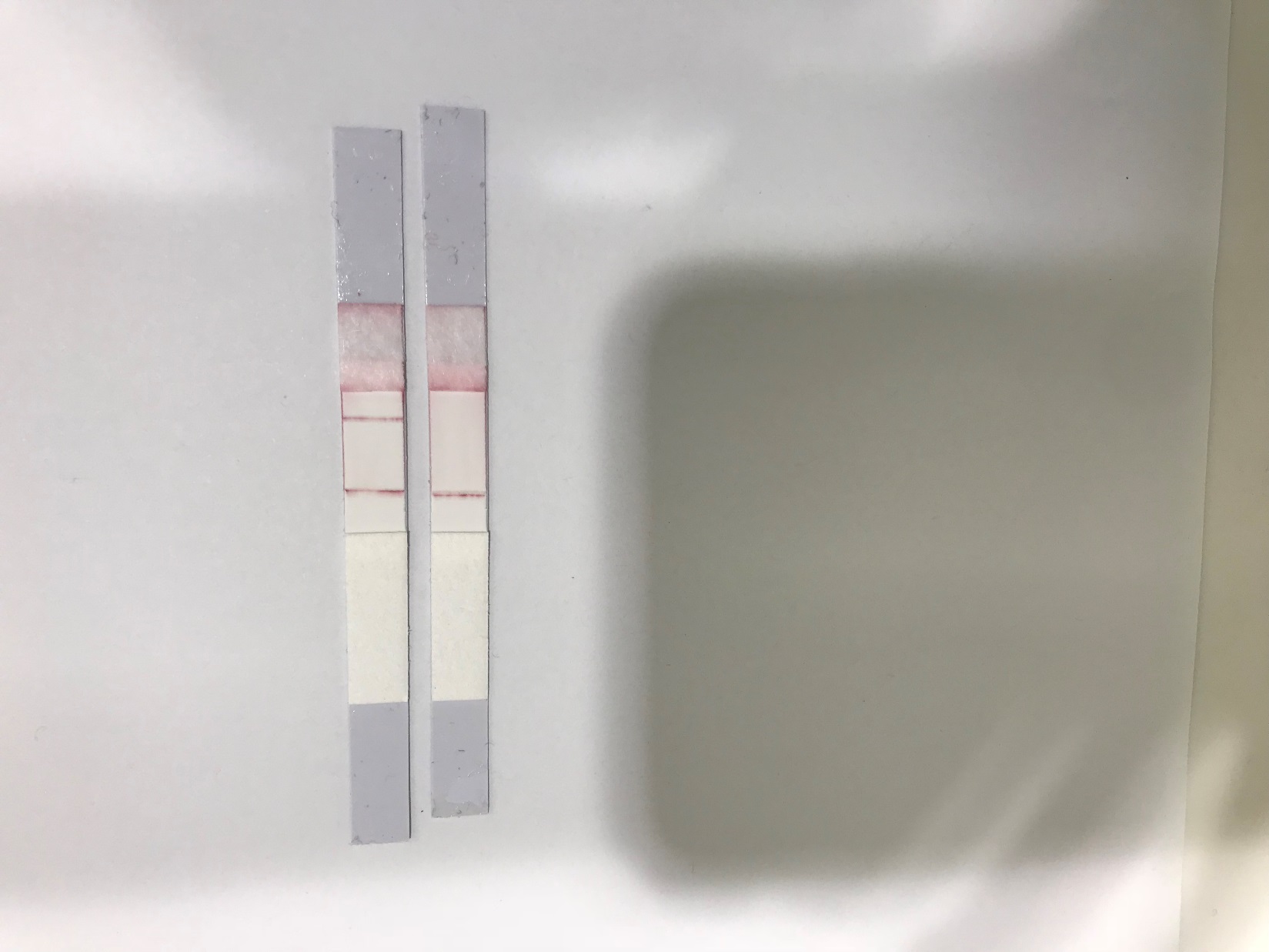
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Fig.1The negative (above) and positive results (below) for celiac disease detection by designed lateral flow immunoassay.

**Conclusion.** We have successfully developed a novel lateral flow immunoassay method to detect celiac disease, which can be used to screen serum and saliva samples onsite, showing its great potential for converting into commercial medical device.

**References**

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