Dokumenttyp: journal article

Autor(en) des Beitrags: Khalifeh Gholi, Mohammad; Kalali, Behnam; Formichella, Luca; Göttner, Gereon; Shamsipour, Fereshteh; Zarnani, Amir Hassan; Hosseini, Mostafa; Busch, Dirk H; Shirazi, Mohammad Hasan; Gerhard, Markus

Titel des Beitrags: Helicobacter pylori FliD protein is a highly sensitive and specific marker for serologic diagnosis of H. pylori infection.

Abstract: Screening for H. pylori in large populations continues to be a challenging task, since available tests have limited sensitivity and specificity, which, in population-based approaches, leads to significant numbers of false positive and false negative results. Various H. pylori proteins associated with virulence are highly immunogenic and therefore candidates to detect the infection. There are currently no defined markers that are recognized in all H. pylori infected patients and that do not show cross-reactivity with other bacterial proteins. We identified the H. pylori "hook-associated protein 2 homologue", FliD (UniProtKB/Swiss-Prot: P96786.4) as a novel marker of infection for serological analysis. The H. pylori FliD protein is an essential element in the assembly of the functional flagella. However, this virulence factor has not yet been tested as a diagnostic marker in serology. For this purpose FliD was recombinantly expressed in E. coli, purified by affinity chromatography and gel filtration and used to coat ELISA plates or immobilized on nitrocellulose stripes. To evaluate its antigenicity we screened a defined panel of patient sera. The recombinant H. pylori FliD protein reacted with a high percentage of human sera. Among 318 samples...
reported positive by histology, 310 (97.4%) were tested positive by FliD Line assay, and 165 out of 170 samples were tested positive by ELISA (97%). We could also reconfirm 297 out of 300 (99%) negative sera by Line assay and 73 from 76 (96%) by ELISA. Taken together, application of FliD in serological diagnosis of H. pylori infection presents a high specificity of up to 99% and a sensitivity of up to 97%. This makes especially the FliD ELISA a simple, cost effective and highly efficient tool to detect H. pylori infection in developing countries where prevalence is high and other screening methods are either not available or are unaffordable.