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### Assessment of hepatitis B vaccination coverage in a population of workers

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Vaccination is a key current prophylactic measure for occupational risk of Hepatitis B infection, particularly to protect workers from acquiring this disease during occupational high-risk exposure. The aim of this cross sectional study was to determine the Hepatitis B distribution in a group of workers, regarding their level of risk exposure. A second study was conducted during a year on a representative sample of a miscellaneous population group of workers (1000). Data concerning Hepatitis B vaccination were obtained from medical and occupational files. Therefore, a distribution of jobs leading to high, medium, and low-risk to be contaminated by Hepatitis B was established. The high-risk group is predominant (45% of the whole population studied) whose 59,25% were vaccinated, 18,5% unvaccinated and 22,2% had an unknown status.

A quarter of the medium exposure group (13% of the whole population) was vaccinated.

Half of the low-risk exposure group (40% of the whole population) was immunized. Among the population studied, we found a quite low adherence to the Hepatitis B's vaccination in the medium and low occupational risk exposure groups. In the context of the relatively low vaccination coverage rate in Europe, our results suggest that it seems desirable to promote a list of mandatory vaccinations including Hepatitis B and regarding to job practices. Moreover, education of workers about vaccination will improve their behaviour toward it and its coverage.

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### Broad protective polyvalent influenza-A DNA vaccine for pigs and humans

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<sup>c</sup>Universal influenza vaccine secured

New influenza A vaccines inducing a broad cross-reactive immune response and universal protection would be of great advantage against both seasonal and emerging pandemic influenza A in humans and pigs. We have developed an alternative influenza vaccine based on DNA expressing 6 selected influenza proteins of pandemic origin (H1,N1 from 2009, H3,N2 from 1968, NP,M from 1918)<sup>1</sup>. Intradermal immunisation with electroporation induced HI antibodies >40 HAI/ml between 7-10 days after second vaccination in pigs and induced protection in ferrets and pigs against challenge with virus homologous and heterologous to the HA/NA in the DNA vaccine. Subsequently, we adapted our DNA formulation to the handheld needle-free painless IDAL (Intra Dermal Application of Liquids) device (MSD) designed for mass vaccination of pigs and obtained antibody responses comparable with those obtained by i.d. injection with electroporation when tested in the rabbit model. We further enhanced the DNA vaccine performance, GMP production yield, and safety by changing our standard 1st generation DNA vaccine vector backbones (pSSI and wrg7079) to the Kanamycin-antibiotic-free new generation vectors NTC8385 and NTC9385 (Nature Technologies)<sup>2</sup>, that used iRNA as selection marker. The improved mix of 6 plasmids delivered with IDAL device and a new DNA vaccine adjuvant induced high titres antibodies in a DNA dose-titration experiment in 8 week old pigs with a very low DNA dose. This encourage for clinical trials development of a "universal" DNA vaccine for pigs against swine flu. Protection of pigs may even prevent pandemics in humans.

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