

SWINE HEALTH

Title: Identification of protective antigens of African swine fever virus – NPB #19-157

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Scientific Abstract:

Efforts to design and develop safe and efficacious DIVA-compatible subunit or vectored ASF vaccines suitable for use in the US are urgently needed. To date, identification of ASFV **protective antigens (PA)**, the first critical step in developing a subunit vaccine, has proven challenging. As ASF protective immunity may be serotype-specific, we have focused on ASFV serotype-associated proteins (SAP) as potential protective antigens (PA) for inducing immunity in the pig.

Here, we have used comparative ASF genomic analysis together with a novel inter-serogroup ASFV chimeric virus strategy (ACV) and vaccination /challenge experiments in pigs to identify ASFV PA. This approach successfully identified four putative serotype-associated PA (*CD2v* (pEP402R), *C-type lectin* (EP153R) and *ASF locus tags: 789 and 289*). Protection observed in immunized/protected animals was solid; only transient fever/clinical responses were observed accompanied by significantly delayed and markedly reduced viremias of approximately 100 to 1000-fold (Fig. 3 and 4; Burmakina and Khatiwada et al., unpublished data). This work provides critical foundational information regarding ASFV PA necessary for design/development of safe and efficacious DIVA compatible subunit or vectored ASF vaccines that will be of considerable value for use in the US should an ASF threat emerge.

These research results were submitted in fulfillment of checkoff-funded research projects. This report is published directly as submitted by the project's principal investigator. This report has not been peer-reviewed.

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