15<sup>th</sup> International Conference on

## **PHARMACEUTICAL FORMULATIONS & DRUG DELIVERY**

September 17-18, 2018 | Philadelphia, USA

## Using gateway cloning for expression of amyloid-like proteins

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myloid-like proteins can build prolonged filaments with spine comprising of numerous stranded  $\beta$ -sheets. In pathology,  $\Lambda$  these filaments are unbranched, generally extracellular and found *in vivo*, moreover, they can be visualized by intercalating fluorescence stains. A list of functions like biofilm development, scaffolding, substrate attachment, adjustment of host reaction, being cytotoxic and antibacterial, can be performed by amyloid proteins. Microbial amyloids are often responsible for biofilm development as well as for host-microbe interactions. During biofilm formation, in which the major proteinaceous component are amyloids, amyloid proteins frequently regulate self and non-self interactions in microorganisms. However, sometimes amyloids act as a toxin to kill other microorganisms and execute roles as physical boundaries, scavengers of toxins or moisture regulators. In our experiments, we apply gateway cloning technology to clone specific genes from Albugo candida and Albugo laibachii encoding amyloid-like proteins and express the recombinant DNA vector in Escherichia coli. Expression clones were constructed and test them for protein expression. Moreover, an additional experiment was conducted to test the anti-microbial activity of amyloid-like fibrils and indicated that amyloid-like proteins have antimicrobial activity in Albugo sp.- infected apoplastic fluid. The growth of different bacteria was reduced in Albugo sp.-infected apoplastic fluids. A. candida Nc2 seemed to be more efficient in restricting bacterial growth, which correlates with higher amounts of amyloid-like protein fibrils. On the other hand, some bacterial taxa grew better in Albugo sp.-infected apoplastic fluid, which suggests a specificity of inhibition mechanisms. These amyloid-like proteins extracted from Albugo sp. has anti-microbial activity. Further, it can be used in the pharmaceutical sector to produce specific antibiotic against bacteria.

## **Biography**

Zahidul Haque is currently working as a scientific research fellow at University of Bonn, Germany. He completed his post-graduation in University of Bonn in the year 2014.

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