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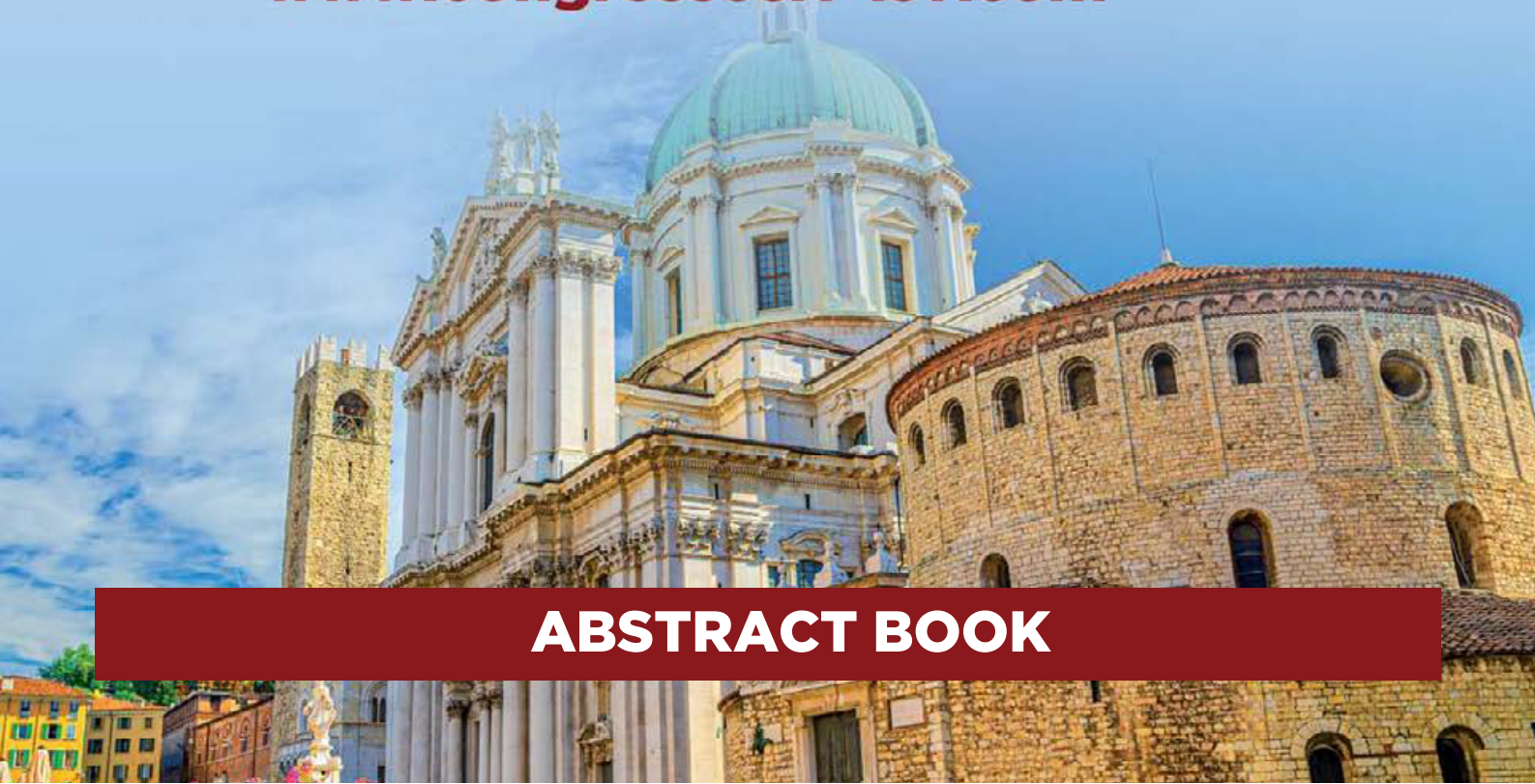

ABSTRACT BOOK

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IN VITRO ANTIVIRAL ACTIVITY OF EPIGALLOCATECHIN GALLATE AGAINST RABIES VIRUS

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Rabies is considered the most lethal zoonotic disease caused by lyssaviruses, especially Rabies virus (RABV). It is associated with the loss of 60,000 human lives each year thus representing a serious health issue. The high cost of immunoglobulin prophylaxis and the need to maintain the cold chain make it necessary to discover low-cost antivirals, especially, for developing countries. It has been reported that Epigallocatechin Gallate (EGCG), which represents the major polyphenolic compound extracted from the leaves of *Camellia sinensis*, inhibits in vitro the infection of several viruses, representing a potential broad-spectrum antiviral. Thus, we decided to test the antiviral activity of EGCG against RABV. Since RABV is a highly pathogenic virus that must be manipulated under BSL-3 conditions, a recombinant Vesicular Stomatitis Virus (pVSV) pseudotyped with RABV glycoprotein (pVSV-RABV) was employed as a safer surrogate. EGCG showed concentration-dependent inhibitory activity against pVSV-RABV infection with an EC_{50} of 0.14 μg/mL.
Next, for target identification, time-of-addition, viral attachment, and entry assays were performed in RABV-infected Vero CCL-81 in the presence of different concentrations of EGCG. Treating the pVSV-RABV with the compound before or during the infection resulted in a significant reduction of viral infectivity. In contrast, no inhibition was detected when cells were treated with the EGCG before or after virus internalization. Viral attachment and entry assays showed that virus infectivity is inhibited only at the stage of virus attachment. Overall, our data suggest a direct interaction of EGCG with virus particles affecting the ability of RABV to recognized target cells.
In conclusion, EGCG inhibits RABV infection acting at the early stages of viral replication cycle suggesting this polyphenolic compound as a promising antiviral candidate against RABV.

References

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