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BOOK OF ABSTRACTS



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## EMERGENCE AND EVOLUTION OF A NOVEL LINEAGE OF *RALSTONIA SOLANACEARUM* WITH EXPANDED HOST RANGE

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### Text

Members of the *Ralstonia solanacearum* species complex (RSSC) are historically known to cause brown rot of potato and Moko disease of banana in Central America. A novel lineage detected in the island of Martinique in 1999 exhibited a dramatically different host range and pathogenicity profile. This new lineage, referred to as 4NPB, can infect cucurbits *Anthurium* and *Heliconia* spp. and is more aggressive on solanaceous crops than previous variants. We sequenced 460 RSSC strains sampled across Martinique and French Guiana during the emergence of this novel lineage. Pangenome and phylogenetic analyses were performed to identify genomic changes linked with the emergence of the new lineage. This analysis reveals the 4NPB population likely emerged from a population of Moko-causing strains found in association with a tomato host on the mainland, followed by dispersal to Martinique. While 4NPB and Moko-causing strains are closely related, variation in the accessory genome includes the exchange of Type 3 secreted effectors and multiple genes with predicted catalytic activity. Recombination hotspots found between 4NPB and Moko strains include various toxin-antitoxin systems, which are potentially involved in intra-species competition and signaling. These changes may underly the altered pathogenicity and host-range profile of 4NPB, contributing to the dramatic expansion of this lineage across Martinique.

## CONTACT DEPENDENT GROWTH INHIBITION IN *RALSTONIA PSEUDOSOLANACEARUM*

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### Text

*Ralstonia pseudosolanacearum* is a deadly bacterial plant pathogen known to infect many plant species. Comparative genomics of a South Korean population of *R. pseudosolanacearum* revealed that recombination frequently targets secreted gene products including type III secreted effectors and CdiA proteins, similar to hemagglutinin. CdiA proteins vary in the presence of a C-terminal toxin domain that inhibits the growth of adjacent cells lacking cognate immunity protein CdiI, a phenomenon called contact-dependent growth inhibition (CDI). CDI mediates both antagonistic and cooperative contact-dependent interactions, contributing to the formation of populations sharing identical CDI loci. *R. pseudosolanacearum* carries an expanded set of CDI loci compared to Burkholderia spp.,