木瓜輪點病毒俏鞘蛋白雙重切為對病毒活性之影響

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摘 要

木瓜輪點病毒(Papaya ringspot virus；PRSV)之基因表現方式為先合成一條複合大蛋白，再經病毒本身的蛋白裂解?進行裂解，形成許多蛋白產物。在NIa蛋白裂解?的切位規則中，病毒的RNA複製?(NIb)與鞘蛋白(CP)之間具有可同時被NIa認知的兩個切位存在，而且兩個切位之間只相隔20個氨基酸，分別為YHE/SRGTD(簡稱CP1)與VFHQ/SKNE(簡稱CP2)，此情形在potyvirus中相當特殊。只有在PRSV中才有。為了探討NIb與CP的異源性蛋白在PRSV的生物特性上可能扮演的角色，本實驗以不同的鞘蛋白突變株來進行研究。由於構築在質體中的RSV本身基因體約有10Kb之大，為了避免在養菌等過程基因體發生變異，故本實驗首先利用限制?與核?酸解序的方式來確認鞘蛋白突變病毒質體的正確性。為了進一步觀察鞘蛋白突變病毒是否具感染能力，質體分別接種到木瓜上，結果發現凡是在CP1或CP2的氨基酸切位上發生改變的病毒，皆無法在木瓜植株上造成感染，進一步以PRSV抗血清進行西方墨點法分析，亦確定這些未感染的植株，確實無病毒存在。另外如果只在CP1或CP2的核?酸上作突變而未改變氨基酸的病毒，則仍然具有感染能力。這些突變病毒在白藜上之感染情形與在木瓜植株上相似，凡是在CP1及CP2的氨基酸切位上發生突變則無法在白藜上產生單班。由此結果得知，RSV位於NIb與CP之間任一個切位突變時，皆會影響病毒的感染能力，至於其對病毒影響是在複製或移動能力的層次上，則有待進一步的實驗證明。

關鍵詞 : 木瓜輪點病毒 ; 蛋白裂解? ; 鞘蛋白 ; 西方墨點法

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