Supplementary Figures

Figure S1. Four examples of recombined regions including ISR.

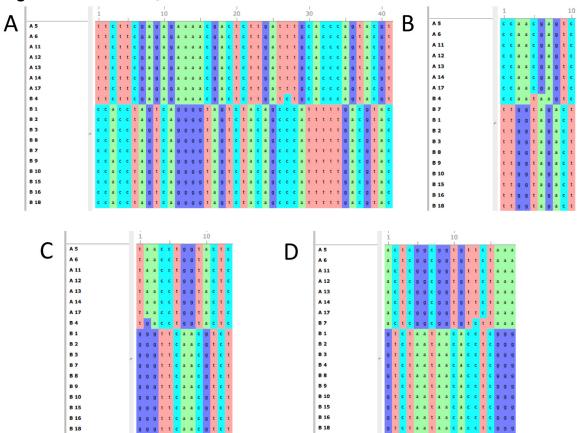


Figure S2. The map of the recombination events to the complete annotated reference genome F57. A circular plot showing in red the genes on the forward (outer) and reverse (inner) strands of F57, in black the mapped recombined segments from clade A (middle) and clade B (outer) and two ancestors (inner), and in the center the GC content.

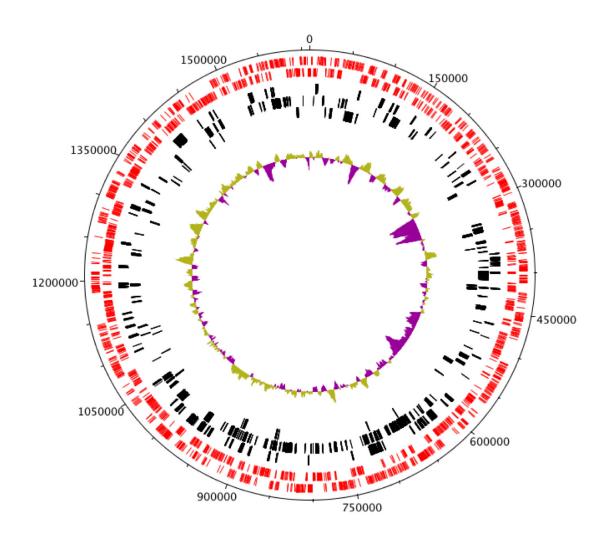


Figure S3.Proportion of genes affected by imports for different functional classes of encoded proteins.

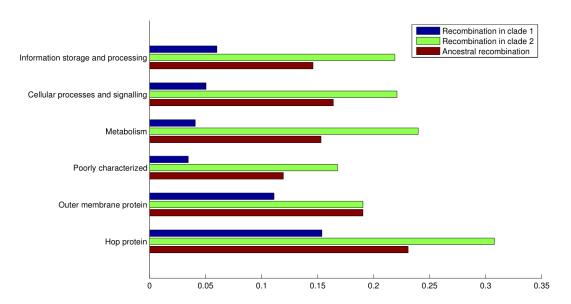


Figure S4. Comparison of amino acid sequences of RdxA. $_{rdxA1-18.\;apr}$

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5-17R dxA (1) MKFLD DEKRROLLNERHSCKM FDSHYEFSSEE LEE IAEIARLS PSSYNTO PW 5-18R dxA (1) MKFLD DEKRROLLNERHSCKA FDSHYEFSSEE LEE IAEIARLS PSSYNTO PW Consensus (1) MKFLD DEKRROLLNERHSCKA FDSHYEFSSEE LEE IAEIARLS PSSYNTO PW (63) 53 50 70 80 90 104 5-18 dxA (53) RFVIVTNKD VKKO IAAHSYFNEEMIKSA SALMVVC PLRPSELL PHSHYMONL 6-28 dxA (53) RFVIVTNKD VKKO IAAHSYFNEEMIKSA SALMVVC PLRPSELL PHSHYMONL 6-38 dxA (53) RFVIVTNKD VKKO IAAHSYFNEEMIKSA SALMVVC PLRPSELL PHSHYMONL 6-58 dxA (53) RFVIVTNKD VKKO IAAHSYFNEEMIKSA SALMVVC PLRPSELL PHSHYMONL 6-68 dxA (53) RFVMVTNKD VKKO IAHSYFNEEMIKSA SALMVVC PLRPSELL PHSHYMONL 6-68 dxA (53) RFVMVTNKD VKKO IAHSYFNEEMIKSA SALMVVC PLRPSELL PHSHYMONL 6-78 dxA (53) RFVIVTNKD VKKO IAAHSYFNEEMIKSA SALMVVC PLRPSELL PHSHYMONL 6-98 dxA (53) RFVIVTNKD VKKO IAAHSYFNEEMIKSA SALMVVC PLRPSELL PHSHYMONL 6-118 dxA (53) RFVIVTNKD VKKO IAAHSYFNEEMIKSA SALMVVC PLRPSELL PHSHYMONL 6-118 dxA (53) RFVIVTNKD VKKO IAAHSYFNEEMIKSA SALMVVC PLRPSELL PHSHYMONL 6-118 dxA (53) RFVIVTNKD VKKO IAAHSYFNEEMIKSA SALMVVC PLRPSELL PHSHYMONL 6-118 dxA (53) RFVIVTNKD VKKO IATHSYFNE -MIKSA SALMVVC PLRPSELL PHSHYMONL 6-13R dxA (53) RFVMVTNKD VKKO IATHSYFNE -MIKSA SALMVVC PLRPSELL PHSHYMONL 6-148 dxA (63) RFVMVTNKD VKKO IATHSYFNE -MIKSA SALMVVC PLRPSELL PHSHYMONL 6-158 dxA (63) RFVMVTNKD VKKO IATHSYFNE -MIKSA SALMVVC PLRPSELL PHSHYMONL 6-168 dxA (63) RFVMVTNKD VKKO IATHSYFNE -MIKSA SALMVVC PLRPSELL PHSHYMONL 6-168 dxA (63) RFVMVTNKD VKKO IATHSYFNE -MIKSA SALMVVC PLRPSELL PHSHYMONL 6-168 dxA (63) RFVMVTNKD VKKO IATHSYFNE -MIKSA SALMVVC PLRPSELL PHSHYMONL 6-168 dxA (63) RFVMVTNKD VKKO IATHSYFNE -MIKSA SALMVVC PLRPSELL PHSHYMONL 6-168 dxA (63) RFVMVTNKD VKKO IA HSYFNE EMIKSA SALMVVC PLRPSELL PHSHYMONL 6-168 dxA (63) RFVMVTNKD VKKO IA HSYFNE EMIKSA SALMVVC PLRPSELL PHSHYMONL 6-168 dxA (63) RFVMVTNKD VKKO IA HSYFNE EMIKSA SALMVVC PLRPSELL PHSHYMONL 6-168 dxA (63) RFVMVTNKD VKKO IA HSYFNE EMIKSA SALMVVC PLRPSELL PHSHYMONL 6-178 dxA (63) RFVMVTNKD VKKO IA HSYFNE EMIKSA SALMVVC PLRPSELL PHSHYMONL 6-168 dxA (63) RFVMVTNKD VKKO IA HSYFNE EMIKSA		(1)	MKFLD	DEKRROL	LNERHSCKAFDSE	HYEFSSEEL	EEIAEIARLSP	SSYNTOPW
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5-8R dvA (53) RFVIVTNKDVKKQIAAHSYFNEEMIKSASALMVVCPLRPSELLPHSHYMQNL 5-9R dvA (53) RFVIVTNKDVKKQIAAHSYFNEEMIKSASALMVVCPLRPSELLPHSHYMONL 5-10R dvA (53) RFVIVTNKDVKKQIAAHSYFNEEMIKSASALMVVCPLRPSELLPHSHYMONL 5-11R dvA (53) RFVMVTNKDVKKQIATHSYFNE-MIKSASALMVVCPLRPSELLPHSHYMQNL 5-12R dvA (53) RFVMVTNKDVKKQIATHSYFNE-MIKSASALMVVCPLRPSELLPHSHYMONL 5-13R dvA (53) RFVMVTNKDVKKQIATHSYFNE-MIKSASALMVVCPLRPSELLPHSHYMQNL 5-14R dvA (53) RFVMVTNKDVKKQIATHSYFNE-MIKSASALMVVCPLRPSELLPHSHYMQNL 5-15R dvA (53) RFVIVTNKDVKKQIAHSYFNEEMIKSASALMVVCPLRPSELLPHSHYMQNL 5-16R dvA (53) RFVIVTNKDVKKQIAHSYFNEEMIKSASALMVVCPLRPSELLPHSHYMQNL 5-16R dvA (53) RFVIVTNKDVKKQIAAHSYFNEEMIKSASALMVVCPLRPSELLPHSHYMQNL 5-17R dvA (53) RFVIVTNKDVKKQIAHSYFNEEMIKSASALMVVCPLRPSELLPHSHYMQNL	5-2R dxA 5-3R dxA 5-4R dxA 5-5R dxA	(53) (53) (53) (53) (53)	RFVIV' RFVIV' RFVIV' RFVIV'	FNKD VKK FNKD VKK FNKD VKK	QIAAHSYFNEENI OIAAHSYFNEENI QIAAHSYFNEENI OIATHSYFNE-MI	IKSASALNV IKSASALNV IKSASALNV IKSASALNV	VCPLRPSELLP VCPLRPSELLP VCPLRPSELLP VCPLRPSELLP VCPLRPSELLP	HSHYMONL HSHYMONL HSHYMONL
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5-13R dvA (53) RFVMVTNKDVKKQIATHSYFNE-MIKSASALMVVCPLRPSELLPHSHYMQNL 5-14R dvA (53) RFVMVTNKDVKKQIATHSYFNE-MIKSASALMVVCPLRPSELLPHSHYMQNL 5-15R dvA (53) RFVIVTNKDVKKQIAAHSYFNEEMIKSASALMVVCPLRPSELLPHSHYMQNL 5-16R dvA (53) RFVIVTNKDVKKQIAAHSYFNEEMIKSASALMVVCPLRPSELLPHSHYMQNL 5-17R dvA (53) RFVMVTNKDVKKQIATHSYFNE-MIKSASALMVVCPLRPSELLPHSHYMQNL	5-2R dvA 5-3R dvA 5-4R dvA 5-5R dvA 5-5R dvA 5-7R dvA 5-8R dvA 5-9R dvA 5-10R dvA	(53) (53) (53) (53) (53) (53) (53) (53)	RFVIV' RFVIV' RFVIV' RFVIV' RFVIV' RFVIV' RFVIV' RFVIV' RFVIV'	LNKD AKK LNKD AKK LNKD AKK LNKD AKK LNKD AKK LNKD AKK	QIAAHSYFNEEMI OIAAHSYFNEEMI OIATHSYFNEEMI OIATHSYFNE-MI QIATHSYFNEEMI QIAAHSYFNEEMI OIAAHSYFNEEMI OIAAHSYFNEEMI OIAAHSYFNEEMI	IKSASALMV IKSASALMV IKSASALMV IKSASALMV IKSASALMV IKSASALMV IKSASALMV IKSASALMV IKSASALMV	VCPLRPSELLP VCPLRPSELLP VCPLRPSELLP VCPLRPSELLP VCPLRPSELLP VCPLRPSELLP VCPLRPSELLP VCPLRPSELLP VCPLRPSELLP	HSHYMONL
5-14R dvA (53) RFVMVTNKD VKKOIATHSYFNE-MIKSASALMVVCPLRPSELLPHSHYMONL 5-15R dvA (53) RFVIVTNKD VKKQIAAHSYFNEEMIKSASALMVVCPLRPSELLPHSHYMONL 5-16R dvA (53) RFVIVTNKD VKKOIAAHSYFNEEMIKSASALMVVCPLRPSELLPHSHYMONL 5-17R dvA (53) RFVMVTNKD VKKQIATHSYFNE-MIKSASALMVVCPLRPSELLPHSHYMONL	5-2R dvA 5-3R dvA 5-4R dvA 5-5R dvA 5-5R dvA 5-7R dvA 5-8R dvA 5-9R dvA 5-10R dvA 5-11R dvA	(53) (53) (53) (53) (53) (53) (53) (53)	RFVIV RFVIV RFVIV RFVIV RFVIV RFVIV RFVIV RFVIV RFVIV RFVIV	LNKD AKK LNKD AKK LNKD AKK LNKD AKK LNKD AKK LNKD AKK LNKD AKK LNKD AKK	QIAAHSYFNEEMI QIAAHSYFNEEMI QIATHSYFNEEMI QIATHSYFNE-MI QIATHSYFNEEMI QIAAHSYFNEEMI QIAAHSYFNEEMI QIAAHSYFNEEMI QIAAHSYFNEEMI QIATHSYFNEEMI QIATHSYFNE-MI	IKSASALMV IKSASALMV IKSASALMV IKSASALMV IKSASALMV IKSASALMV IKSASALMV IKSASALMV IKSASALMV	VCPLRPSELLP VCPLRPSELLP VCPLRPSELLP VCPLRPSELLP VCPLRPSELLP VCPLRPSELLP VCPLRPSELLP VCPLRPSELLP VCPLRPSELLP	HSHYMONL
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5-17R &A (53) RFVMVTNKD VKKQIATHSYFNE-MIKSASALMVVCPLRPSELLPHSHYMQNL	5-2R dvA 5-3R dvA 5-4R dvA 5-5R dvA 5-5R dvA 5-7R dvA 5-9R dvA 5-11R dvA 5-11R dvA 5-13R dvA 5-14R dvA	(53) (53) (53) (53) (53) (53) (53) (53)	RFVIV RFVIV RFVIV RFVIV RFVIV RFVIV RFVIV RFVIV RFVIV RFVMV RFVMV RFVMV RFVMV RFVMV	LNKD AKK	QIAAHSYFNEEMI OIAAHSYFNEEMI OIATHSYFNEEMI OIATHSYFNEEMI OIATHSYFNEEMI OIAAHSYFNEEMI OIAAHSYFNEEMI OIAAHSYFNEEMI OIAAHSYFNEEMI OIATHSYFNEEMI OIATHSYFNEEMI OIATHSYFNEEMI OIATHSYFNEEMI	IKSASALMV	VCPLRPSELLP	HSHYMONL
	5-2R dvA 5-3R dvA 5-4R dvA 5-5R dvA 5-7R dvA 5-9R dvA 5-10R dvA 5-11R dvA 5-12R dvA 5-13R dvA 5-15R dvA 5-15R dvA	(53) (53) (53) (53) (53) (53) (53) (53)	RFVIV RFVIV RFVIV RFVIV RFVIV RFVIV RFVIV RFVIV RFVIV RFVIV RFVIV RFVIV RFVIV RFVIV RFVIV RFVIV	LNKD AKK	QIAAHSYFNEEMI QIAAHSYFNEEMI QIAAHSYFNEEMI QIATHSYFNE-MI QIATHSYFNEEMI QIATHSYFNEEMI QIATHSYFNEEMI QIATHSYFNEEMI QIATHSYFNEEMI QIATHSYFNEEMI QIATHSYFNE-MI QIATHSYFNE-MI QIATHSYFNE-MI QIATHSYFNE-MI QIATHSYFNE-MI	IKSASALMV	VCPLRPSELLP	HSHYMONL HSHYMONL HSHYMONL HSHYMONL HSHYMONL HSHYMONL HSHYMONL HSHYMONL HSHYMONL HSHYMONL HSHYMONL HSHYMONL HSHYMONL HSHYMONL HSHYMONL HSHYMONL HSHYMONL HSHYMONL HSHYMONL
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Consensus (53) RFVIVTNKDVKKQIAAHSYFNEEMIKSASALMVVCPLRPSELLPHSHYMQNL	5-2R dvA 5-3R dvA 5-4R dvA 5-5R dvA 5-5R dvA 5-7R dvA 5-9R dvA 5-10R dvA 5-12R dvA 5-14R dvA 5-14R dvA 5-15R dvA 5-17R dvA 5-17R dvA	(63) (63) (63) (63) (63) (63) (63) (63)	RFVIV RFVIV RFVIV RFVIV RFVIV RFVIV RFVIV RFVIV RFVMV RFVMV RFVMV RFVMV RFVMV RFVMV RFVMV RFVMV RFVMV	TNED VER	QIAAHSYFNEEMI QIAAHSYFNEEMI QIAAHSYFNEEMI QIATHSYFNE—MI QIATHSYFNEEMI QIATHSYFNEEMI QIAAHSYFNEEMI QIATHSYFNEEMI QIATHSYFNEEMI QIATHSYFNE—MI QIATHSYFNE—MI QIATHSYFNE—MI QIATHSYFNE—MI QIATHSYFNE—MI QIATHSYFNE—MI QIATHSYFNE—MI QIATHSYFNE—MI QIATHSYFNE—MI	IKSASALMY	VCPLRPSELLP	HSHYMONL HSHYMONL

Figure S5. Neighbor-Joining tree of the 18 amino acid sequences of RdxA.

