

Table S2. Predicted *M. abscessus* prophage immunity groups

Immunity <sup>1</sup>	Cluster	Prophages <sup>8</sup>	attB	Int <sup>6</sup>	Int-dep Imm? <sup>7</sup>
Imm-1	MabA1	prophiATCC19977-1, prophigD15-1, prophigD17-2, prophigD102-1, <i>prophiGD12-1</i> , <i>prophiGD14-1</i> , <i>prophiGD23-1</i> , <i>prophiGD39-1</i> , <i>prophiGD84-1</i>	attB-5	Int-Y	No
Imm-2	MabA1	prophiGD20-1, prophigD21-2, prophigD22-1, prophigD43A-1, prophigD57-2, <i>prophiGD08-1</i> , <i>prophiGD13-1</i> , <i>prophiGD24-1</i> , <i>prophiGD35-1</i> , <i>prophiGD36-1</i> , <i>prophiGD42-1</i> , <i>prophiGD75-2</i> , <i>prophiGD100A-1</i> , <i>prophiGD100B-1</i>	attB-5	Int-Y	No
Imm-3	MabA1	prophiGD27-1	attB-5	Int-Y	No
Imm-4	MabA2, MabA3	prophiGD02-2, prophigD90-1, <i>prophiGD16-2</i> prophiGD91-2	attB-15 attB-5	Int-Y Int-Y	No No
Imm-5	MabA1	<i>prophiGD10-1</i> , <i>prophiGD30-1</i> , <i>prophiGD58-2</i>	attB-5	Int-Y	No
Imm-6	MabA1	prophiGD11-1	attB-5	Int-Y	No
Imm-7	MabB	prophiGD08-2, prophigD11-2, prophigD21-1, prophigD42-2, prophigD89-1	attB-2	Int-Y	Yes
Imm-8	MabB	prophiGD34-2, prophigD43A-2, prophigD62-1	attB-2	Int-Y	Yes
Imm-9 <sup>2</sup>	MabB	prophiGD16-1	attB-2	Int-Y	Yes
Imm-10	MabC	prophiGD13-2, prophigD39-2, prophigD44-1, prophigD51-1, prophigD52-1, prophigD57-1, prophigD91-1, prophigD104-2, <i>prophiGD56-1</i> , <i>prophiGD61-1</i> , <i>prophiGD72-1</i>	attB-13	Int-Y	Yes
Imm-11	MabC	prophiGD33-1, prophigD43A-3, prophigD100A-2, <i>prophiGD42-3</i>	attB-12	Int-Y	Yes
Imm-12	MabD	prophiGD05-1, prophigD17-1	attB-10	Int-Y	No
Imm-13	MabD	prophiGD12-2, <i>prophiGD84-2</i>	attB-10	Int-Y	No
Imm-14	MabE1	prophiGD25-1, prophigD54-1, prophigD102-2, <i>prophiGD09-1</i> , <i>prophiGD45-1</i> , <i>prophiGD52-2</i>	attB-4	Int-Y	No
Imm-15	MabE1	<i>prophiGD53-1</i> , prophigD68-1, prophigD04-1, prophigD111-1	attB-4	Int-Y	No
Imm-16	MabE2	prophiGD91-4	attB-6	Int-Y	No
Imm-17	MabF	prophiGD08-3, prophigD11-3, prophigD62-2	attB-3	Int-Y	No
Imm-18	MabG	prophiGD03-1	attB-11	Int-Y	No
Imm-19	MabG	prophiGD21-3, prophigD24-2, prophigD95-1	attB-11	Int-Y	No
Imm-20	MabG	prophiGD58-1	attB-11	Int-Y	No
Imm-21	MabH	prophiGD05-2, prophigD36-2	attB-8	Int-Y	Yes
Imm-22	MabI	prophiGD54-2 prophiGD86-1	attB-9 attB-17	Int-S Int-S	No No
Imm-23	MabJ	prophiGD24-3, prophigD43A-4, <i>prophiGD21-4</i> , <i>prophiGD75-1</i>	attB-7	Int-S	No
Imm-24	MabK	prophiGD43A-5	attB-1	Int-Y	Yes
Imm-25	MabL	prophiBoletti-1	attB10	Int-Y	No
Imm-26	MabL	prophiGD43A-6, prophigD88-1, <i>prophiGD55-1</i> , <i>prophiGD60-1</i>	attB-10	Int-Y	No
Imm-27 <sup>3</sup>	MabM	prophiGD05-3	attB-11	Int-Y	No
Imm-28 <sup>4</sup>	MabN	prophiGD53-3, prophigD62-3, prophigD69-1, prophigD108-1, <i>prophiGD02-1</i> <i>prophiGD95-2</i>	attB-13	Int-Y	Yes
Imm-28 <sup>5</sup>	MabO	prophiGD91-3	attB-14	Int-Y	Yes
Imm-29	MabP	prophiGD51-2	attB-6	Int-Y	No
Imm-30	MabQ	prophiGD79-1	attB-4	Int-Y	No

<sup>1</sup>Immunity groups were defined as prophages sharing similar repressors, typically having >90% amino acid identity. Prophages in different immunity groups typically share <70% amino acid identity.

<sup>2</sup>The MabB (Imm-9) repressor in prophigD16-1 is overall 88% aa identical to Imm-7 phages, but differs substantially in the HTH region and is likely heteroimmune.

<sup>3</sup>The MabM repressor is 79% amino acid identity to Cluster MabG genomes, and heteroimmunity is uncertain.

<sup>4</sup>The prophigD53-3 repressor is 89% identical to other MabN's, and heteroimmunity is plausible.

<sup>5</sup>MabO repressor has 81% aa identity to imm-26 repressors, but it very similar in the putative HTH region, and homoimmunity is likely.

<sup>6</sup>Integrase is designated as being in the tyrosine-integrase (Int-Y) family or serine-integrase family (Int-S)

<sup>7</sup>Integration-dependent immunity systems are those in which the *attP* core sequence is within the repressor gene such that the gene is interrupted in the prophage state.

<sup>8</sup>Repressors identified in incomplete prophages are shown in italic type