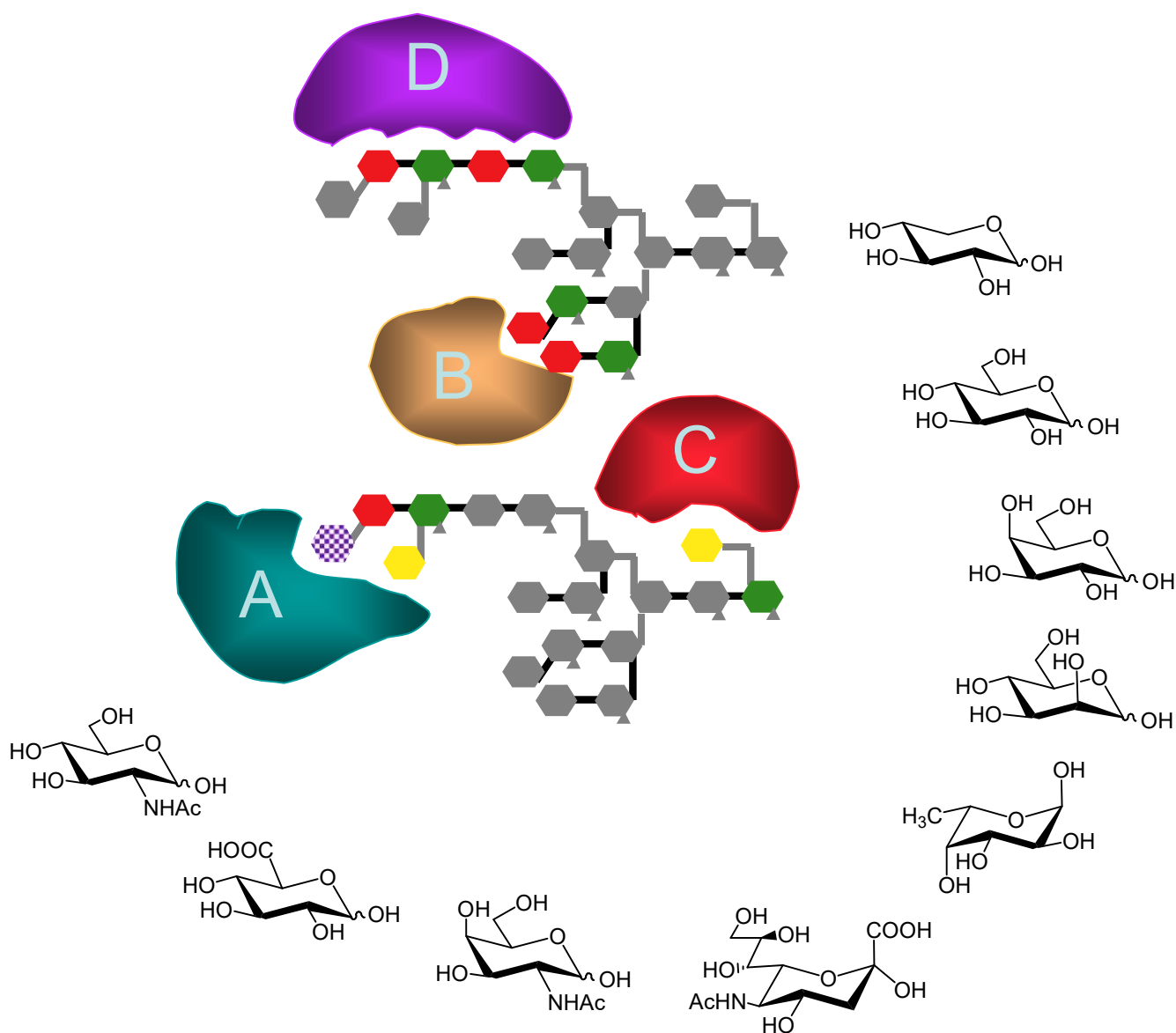
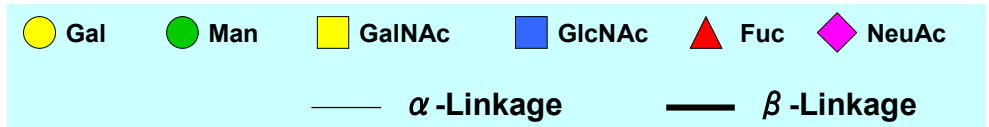


# GlycoStation™

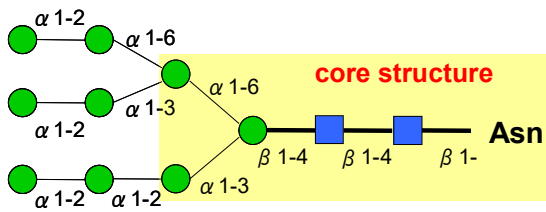
Glycan Structure & Lectin Specificity Ver. 2.0



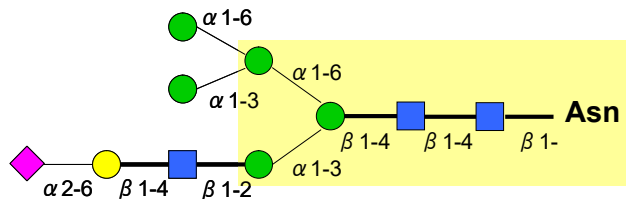
# Glycan structure 1



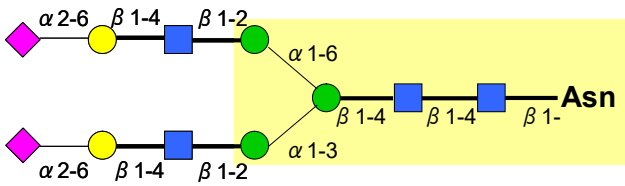
High mannose type (one example)



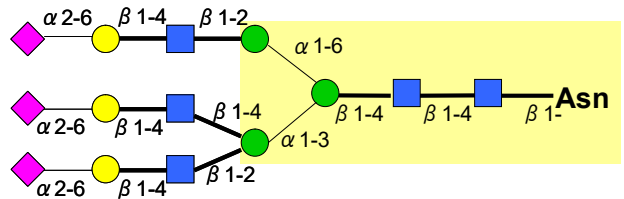
Hybrid type (one example)



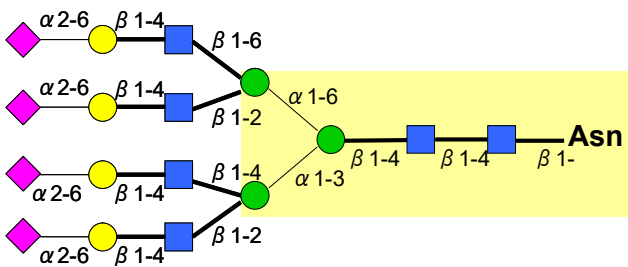
Complex type: bi-antennary (one example)



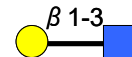
Complex type: tri-antennary (one example)



Complex type: tetra-antennary (one example)

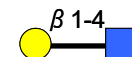


N-Acetylglucosamine type1



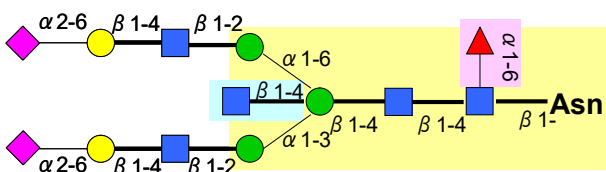
N-Acetylglucosamine type2

(generality)

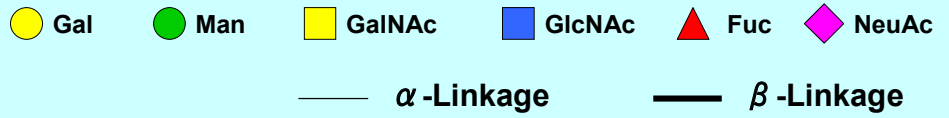


core fucose : Fuc that unites with GlcNAc residue that unites with Asn

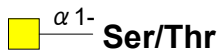
bisecting-GlcNAc : GlcNAc that unites with C - 4th place in the  $\beta$ -mannose in core structure



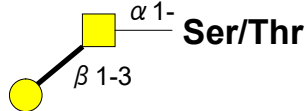
## Glycan structure 2



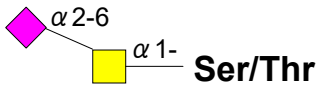
Tn-antigen



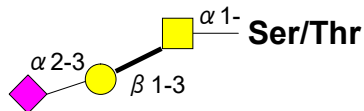
T-antigen (= Core1)



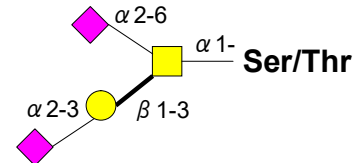
sialyl-T-antigen



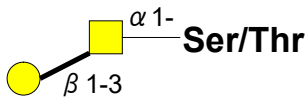
sialyl-T-antigen



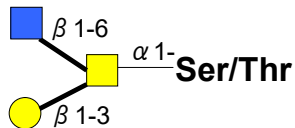
disialyl-T-antigen



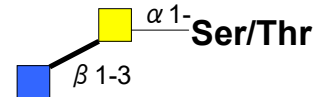
Core1 (=T-antigen)



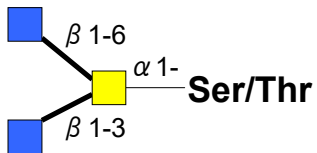
Core2



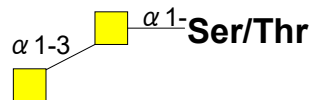
Core3



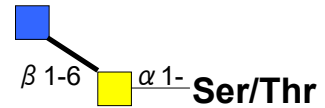
Core4



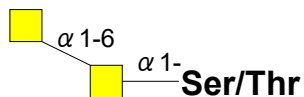
Core5



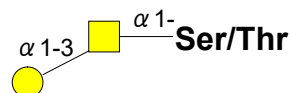
Core6



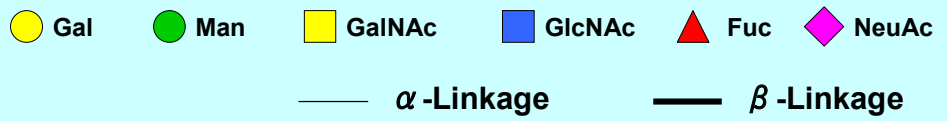
Core7



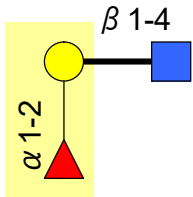
Core8



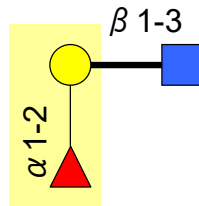
## Glycan structure 3



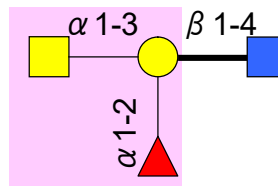
H-antigen Type II



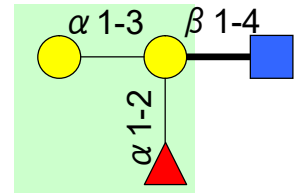
H-antigen Type I



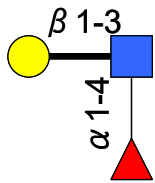
A-antigen



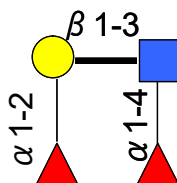
B-antigen



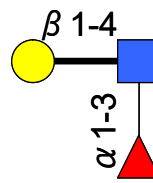
Lewis<sup>a</sup>



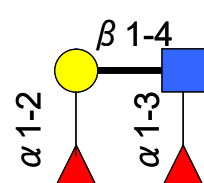
Lewis<sup>b</sup>



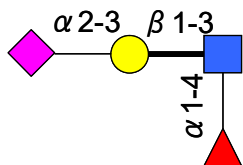
Lewis<sup>x</sup>



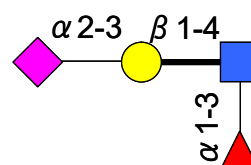
Lewis<sup>y</sup>



sialyl-Lewis<sup>a</sup>



sialyl-Lewis<sup>x</sup>



## A list of lectins on LecChip™ Ver. 1.0 and the specificity

No.	Lectin ( <i>origin</i> )	Reported glycan selectivity
1	LTL ( <i>Lotus tetragonolobus</i> )	Fuca1-3(Galβ1-4)GlcNAc (Lewis x), Fuca1-2Galβ1-4GlcNAc (H-type 2)
2	PSA ( <i>Pisum sativum</i> )	Fuca1-6GlcNAc (Core Fuc) , α-Man
3	LCA ( <i>Lens culinaris</i> )	Fuca1-6GlcNAc (Core Fuc), α-Man
4	UEA-I ( <i>Ulex europaeus</i> )	Fuca1-2Galβ1-4GlcNAc (H-type 2)
5	AOL ( <i>Aspergillus oryzae</i> )	Fuca1-6GlcNAc (Core Fuc), Fuca1-2Galβ1-4GlcNAc (H-type 2)
6	AAL ( <i>Aleuria aurantia</i> )	Fuca1-3(Galβ1-4)GlcNAc (Lewis x), Fuca1-6GlcNAc (Core Fuc)
7	MAL I ( <i>Maackia amurensis</i> )	Siaα2-3Galβ1-4GlcNAc
8	SNA ( <i>Sambucus nigra</i> )	Siaα2-6Gal/GalNAc
9	SSA ( <i>Sambucus sieboldiana</i> )	Siaα2-6Gal/GalNAc
10	TJA-I ( <i>Trichosanthes japonica</i> )	Siaα2-6Gal/GalNAc, HSO3(-) -6Gal β1-4GlcNAc
11	PHAL ( <i>Phaseolus vulgaris</i> )	tri/tetra-antennary complex-type N-glycan
12	ECA ( <i>Erythrina cristagalli</i> )	Galβ1-4GlcNAc (up with increasing the number of terminal Gal), no affinity for fully sialylated N-type, fully agalactosylated N-type
13	RCA120 ( <i>Ricinus communis</i> )	Galβ1-4GlcNAc (up with increasing the number of terminal Gal), Galβ1-3Gal (weak), no affinity for agalactosylated N-type
14	PHAE ( <i>Phaseolus vulgaris</i> )	bi-antennary complex-type N-glycan with outer Gal and bisecting GlcNAc, no affinity for fully sialylated N-type
15	DSA ( <i>Datura stramonium</i> )	(GlcNAcβ1-4)n (Chitin), tri/tetra-antennary N-glycan
16	GSL-II ( <i>Griffonia simplicifolia</i> )	agalactosylated tri/tetra antennary glycans, GlcNAc, no affinity for fully galactosylated or sialylated N-type
17	NPA ( <i>Narcissus pseudonarcissus</i> )	High-Mannose including Manα1-6Man
18	ConA ( <i>Canavalia ensiformis</i> )	High-Mannose including Manα1-6(Manα1-3)Man
19	GNA ( <i>Galanthus nivalis</i> )	High-Mannose including Manα1-3Man
20	HHL ( <i>Hippeastrum hybrid</i> )	High-Mannose including Manα1-3Man or Manα1-6Man
21	ACG ( <i>mushroom, Agrocybe cylindracea</i> )	Gal β1-3Gal, Siaα2-3Galβ1-4GlcNAc
22	TxLCI ( <i>Tulipa gesneriana</i> )	Manα1-3(Manα1-6)Man, bi/tri-antennary complex-type N-glycan, GalNAc
23	BPL ( <i>Bauhinia purpurea</i> )	Galβ1-3GalNAc (up with Lewis x, down with Core Fuc), GalNAc
24	TJA-II ( <i>Tanthes japonica</i> )	Fuca1-2Galβ1-> or GalNAcβ1-> groups at their non-reducing terminals
25	EEL ( <i>Euonymus europaeus</i> )	Galα1-3Galβ1-4GlcNAc, Fuca1-2Galβ1-3GlcNAc (H antigen)
26	ABA ( <i>fungus, Agaricus bisporus</i> )	Galβ1-3GalNAc, GlcNAc
27	LEL ( <i>tomato, Lycopersicon esculentum</i> )	(GlcNAcβ1-4)n (Chitin), (Galβ1-4GlcNAc)n (polylactosamine)
28	STL ( <i>potato, Solanum tuberosum</i> )	(GlcNAcβ1-4)n (Chitin) oligosaccharide containing GlcNAc and MurNAc
29	UDA ( <i>Urtica dioica</i> )	GlcNAcβ1-4GlcNAc (Chitin), High-Mannose (3 to High, up with increasing the number of Man)
30	PWM ( <i>pokeweed, Phytolacca Americana</i> )	(GlcNAcβ1-4)n (Chitin)
31	Jacalin ( <i>Artocarpus integrifolia</i> )	GlcNAcβ1-3GalNAc (Core3), Siaα2-3Galβ1-3GalNAc (sialyl T), Galβ1-3GalNAc (T-antigen), α-GalNAc (Tn-antigen)
32	PNA ( <i>peanut, Arachis hypogaea</i> )	Galβ1-3GalNAc
33	WFA ( <i>Wisteria floribunda</i> )	GalNAcβ1-4GlcNAc (LacdiNAc), Galβ1-3(-6)GalNAc
34	ACA ( <i>Amaranthus caudatus</i> )	Galβ1-3GalNAc (T-antigen), Siaα2-3Galβ1-3GalNAc (sialyl T)
35	MPA ( <i>Maclura pomifera</i> )	α-GalNAc (Tn-antigen), Galβ1-3GalNAc (T-antigen)
36	HPA ( <i>snail, Helix pomatia</i> )	α-GalNAc
37	VVA ( <i>Vicia villosa</i> )	GalNAcβ1-4Gal, GalNAcβ1-3Gal, α-GalNAc
38	DBA ( <i>Dolichos biflorus</i> )	Blood group A, GalNAcα1-3GalNAc, GalNAcβ1-4(Siaα2-3)Galβ1-4Glc (GM2)
39	SBA ( <i>soybean, Dolichos biflorus</i> )	α- or β-linked GalNAc, Galα1-4Gal-Glc
40	Calsepa ( <i>Calystegia sepium</i> )	Galactosylated bianntenary N-type with bisecting GlcNAc (galacto > agalacto, down with Core Fuc), High-Mannose (Man2-6)
41	PTL-I ( <i>Psophocarpus tetragonolobus</i> )	α-GalNAc, Galα1-3(Fuca1-2)Gal (B-antigen)
42	MAH ( <i>Maackia amurensis</i> )	Siaα2-3Galβ1-3(Siaα2-6)GalNAc (disialyl-T)
43	WGA ( <i>wheat germ, Triticum aestivum</i> )	(GlcNAcβ1-4)n (Chitin), Hybrid type N-glycan, Sia
44	GSL-I A4 ( <i>Griffonia simplicifolia</i> )	α-GalNAc
45	GSL-I B4 ( <i>Griffonia simplicifolia</i> )	α-Gal

## A list of lectins on LecChip™ Ver. 2.0 and the specificity

No.	Lectin ( <i>origin</i> )	Reported glycan selectivity
1	rOAA ( <i>Planktothrix agardhii</i> )	High Mannose Type I
2	rKAA1 ( <i>Kappaphycus alvarezii</i> )	High Mannose Type I
3	rMPA1 ( <i>Meristotheca papulosa</i> )	High Mannose Type I
4	rMPA2 ( <i>Meristotheca papulosa</i> )	High Mannose Type I
5	rESA2 ( <i>Eucheuma serra</i> )	High Mannose Type I
6	rBCA1b-pro ( <i>Boodlea coacta</i> )	High Mannose Type II
7	rBCA1b ( <i>Boodlea coacta</i> )	High Mannose Type II
8	rBCA2-pro ( <i>Boodlea coacta</i> )	High Mannose Type II
9	rBCA2 ( <i>Boodlea coacta</i> )	High Mannose Type II
10	rBPL17 ( <i>Bryopsis plumosa</i> )	High Mannose Type III
11	rMPL1 ( <i>Meristotheca papulosa</i> )	High Mannose Type IV
12	rCV-N ( <i>Nostoc ellipsosporum</i> )	High Mannose
13	rGRFT ( <i>Griffithsia sp.</i> )	High Mannose
14	rMVL ( <i>Microcystis viridis</i> )	High Mannose
15	rCalsepa ( <i>Calystegia sepium</i> )	High Mannose
16	rHypninA2 ( <i>Hypnea japonica</i> )	Core Fucose
17	PhoSL ( <i>Pholiota squarrosa</i> )	Core Fucose
18	rAAL ( <i>Aleuria aurantia</i> )	Fuca1-3, Fuca1-2
19	rPA-III ( <i>Pseudomonas aeruginosa</i> )	Fucose, Mannose
20	rCLA ( <i>Codium latum</i> )	Disclosed as soon as clarified
21	UEA-I ( <i>Ulex europaeus</i> )	Fuca1-2Galβ1-4GlcNAc (H-antigen type2)
22	PHAE ( <i>Phaseolus vulgaris</i> )	bi-antennary complex-type N-glycan with outer Gal and bisecting GlcNAc, no affinity for fully sialylated N-type
23	PHAL ( <i>Phaseolus vulgaris</i> )	tri/tetra-antennary complex type N-glycan
24	rACG ( <i>Agroclybe cylindracea</i> )	α2-3Sia (Neu5Ac)
25	MAL_I ( <i>Maackia amurensis</i> )	α2-3Sia (Neu5Ac)
26	rPSL1a ( <i>Polyporus squamosus</i> )	α2-6Sia (Neu5Ac)
27	rLSL-N ( <i>Laetiporus sulphureus</i> )	LacNAc, polyLacNAc
28	rDiscoidin II ( <i>Dictyostelium discoideum</i> )	Gal, LacNAc, Asialo
29	rF17AG ( <i>Escherichia coli</i> )	GlcNAc
30	rULL-pro ( <i>Ulva limnetica</i> )	Disclosed as soon as clarified
31	rPVL ( <i>mushroom Psathyrella velutina</i> )	Agalacto (GlcNAc)
32	rMalectin ( <i>Homo sapiens</i> )	Glc-N-biose
33	rABA ( <i>Agaricus bisporus</i> )	T-antigen, Agalacto (GlcNAc)
34	Jacalin ( <i>Artocarpus integrifolia</i> )	GlcNAcβ1-3GalNAc (Core3), Siaα2-3Galβ1-3GalNAc (sialyl T), Galβ1-3GalNAc (T-antigen), α-GalNAc (Tn-antigen)
35	rCFAsub1 ( <i>Codium subtubulosum</i> )	GalNAc
36	rBCL11a ( <i>Bryopsis corticulans</i> )	GalNAc, GlcNAc
37	IRA ( <i>Iris hybrid</i> )	GalNAcα1-3GalNAc (Core5)
38	MAH ( <i>Maackia amurensis</i> )	Siaα2-3Galβ1-3(Siaα2-6)GalNAc (disialyl-T)
39	WFA ( <i>Wisteria floribunda</i> )	GalNAcβ1-4GlcNAc (LacdiNAc), Galβ1-3(-6)GalNAc
40	rCNL ( <i>Clitocybe nebularis</i> )	α/β-GalNAc
41	rDiscoidin I ( <i>Dictyostelium discoideum</i> )	β-GalNAc
42	SJA ( <i>Sophora japonica</i> )	β-GalNAc
43	rBcBry1-1C ( <i>Bryopsis corticulans</i> )	Sulfated carbohydrates
44	rCGL2 ( <i>sea mussel Crenomytilus grayanus</i> )	Blood Group A, Blood Group B
45	rMOA ( <i>Marasmius oreades</i> )	α-Gal

## LecChip™ Ver.1.0

- |          |            |            |             |              |
|----------|------------|------------|-------------|--------------|
| 1. LTL   | 10. TJA-I  | 19. GNA    | 28. STL     | 37. VVA      |
| 2. PSA   | 11. PHAL   | 20. HHL    | 29. UDA     | 38. DBA      |
| 3. LCA   | 12. ECA    | 21. ACG    | 30. PWM     | 39. SBA      |
| 4. UEA I | 13. RCA120 | 22. TxLC I | 31. Jacalin | 40. Calsepa  |
| 5. AOL   | 14. PHAE   | 23. BPL    | 32. PNA     | 41. PTL I    |
| 6. AAL   | 15. DSA    | 24. TJA-II | 33. WFA     | 42. MAH      |
| 7. MAL   | 16. GSL II | 25. EEL    | 34. ACA     | 43. WGA      |
| 8. SNA   | 17. NPA    | 26. ABA    | 35. MPL     | 44. GSL-I A4 |
| 9. SSA   | 18. ConA   | 27. LEL    | 36. HPA     | 45. GSL-I B4 |

Coming soon !

## LecChip™ Ver.2.0

- |               |               |             |                   |                  |
|---------------|---------------|-------------|-------------------|------------------|
| 1. rOAA       | 10. rBPL17    | 19. rPA-IIL | 28. rDiscoidin II | 37. IRA          |
| 2. rKAA-1     | 11. rMPL1     | 20. rCLA    | 29. rF17AG        | 38. MAH          |
| 3. rMPA-1     | 12. rCV-N     | 21. UEA-I   | 30. rULL-pro      | 39. WFA          |
| 4. rMPA-2     | 13. rGRFT     | 22. PHA(E)  | 31. rPVL          | 40. rCNL         |
| 5. rESA-2     | 14. rMVL      | 23. PHA(L)  | 32. rMalectin     | 41. rDiscoidin I |
| 6. rBCA1b-pro | 15. rCalsepa  | 24. rACG    | 33. rABA          | 42. SJA          |
| 7. rBCA1b     | 16. rHypninA2 | 25. MAL_I   | 34. Jacalin       | 43. rBry1-1C     |
| 8. rBCA-2-pro | 17. PhoSL     | 26. rPSL1a  | 35. rCFAsub1      | 44. rCGL2        |
| 9. rBCA-2     | 18. rAAL      | 27. rLSL-N  | 36. BCL11a        | 45. rMOA         |