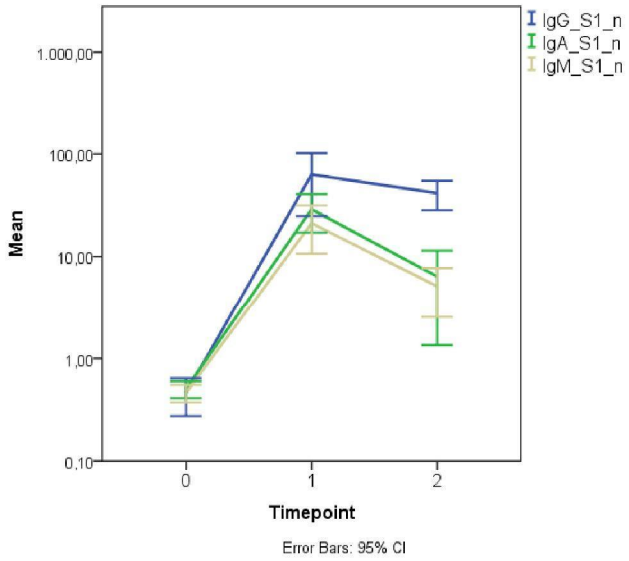
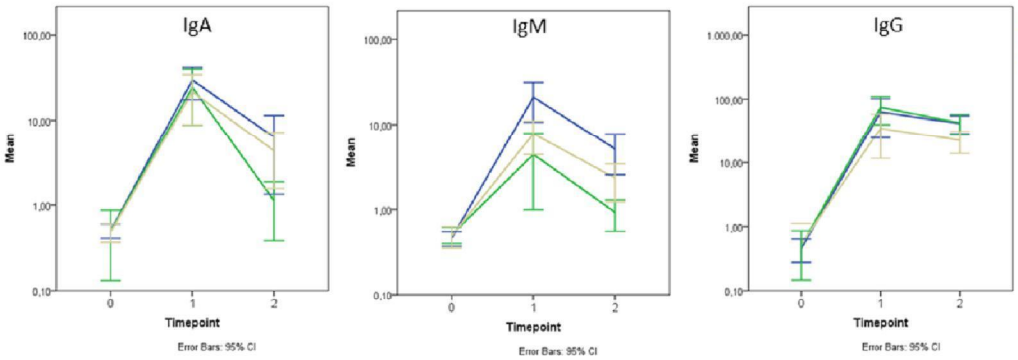
Ig kinetics to SARS-CoV-2

PiCo and FFX

S1-specific antibodies, kinetics vary (PiCo)

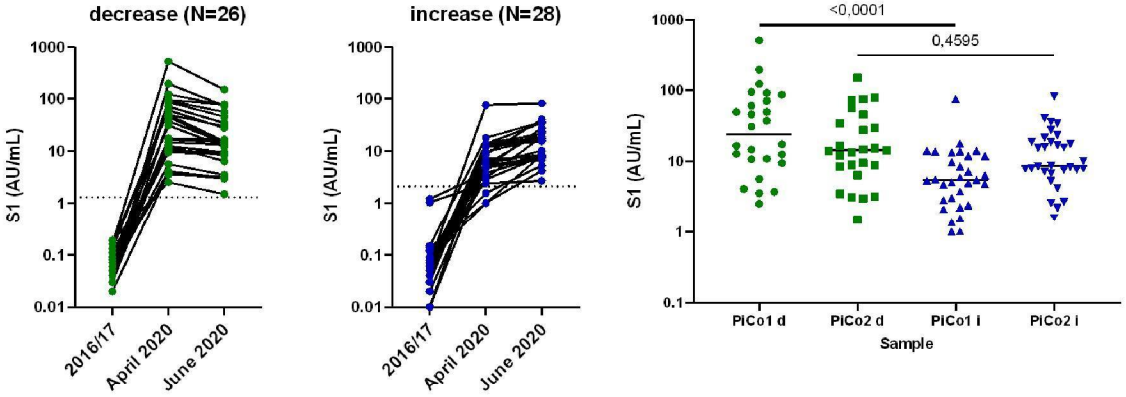


Kinetics of isotypes and specificitiesd (PiCo)

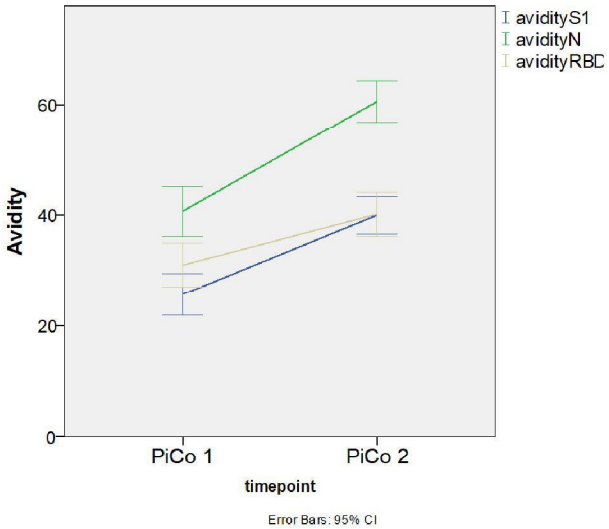


		PiCo1 V PiCo2	P3 V PiCo2
		Sig. (2-tailed)	Sig. (2-tailed)
IgG	S1	0,288	0
	N	*0,094*	0
	RBD	0,318	0
IgA	S1	0,001	0,023
	N	0,004	*0,134*
	RBD	0,01	0,008
IgM	S1	0,004	0,001
	N	0,047	**0,034**
	RBD	0,003	0,002

Timing of sampling



IgG avidity (PiCo)

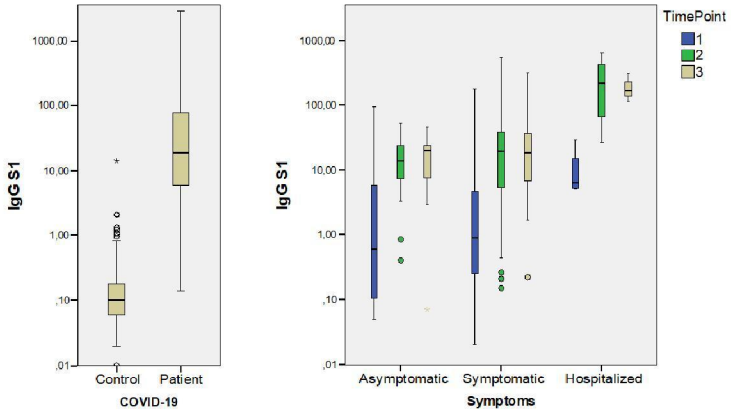


- Matching disease days
- Add severity of symptoms

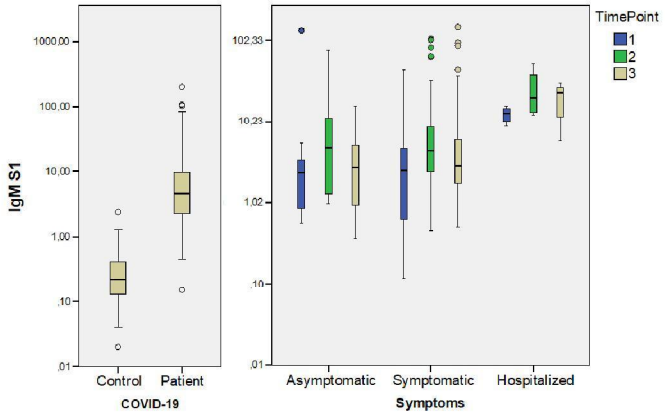
FFX study

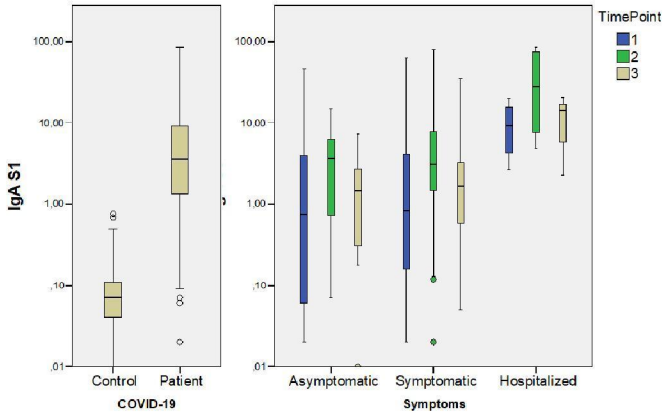
		Age group 1-16		17 >		
		Mean	Count	Mean	Count	Significance
Age		12		42		
Sex	male		14 (47%)		33 (37%)	
Days post symptoms		10		12		0.210
Index case			0		55	
Symtoms						<0.001
	Asymptomatic		9 (30%)		2 (2.5%)	
	Non-hospitalized		21 (70%)		71 (88.8%)	
	Hospitalized		0 (0%)		7 (8.8%)	

IgG to Spike S1 (FFX)

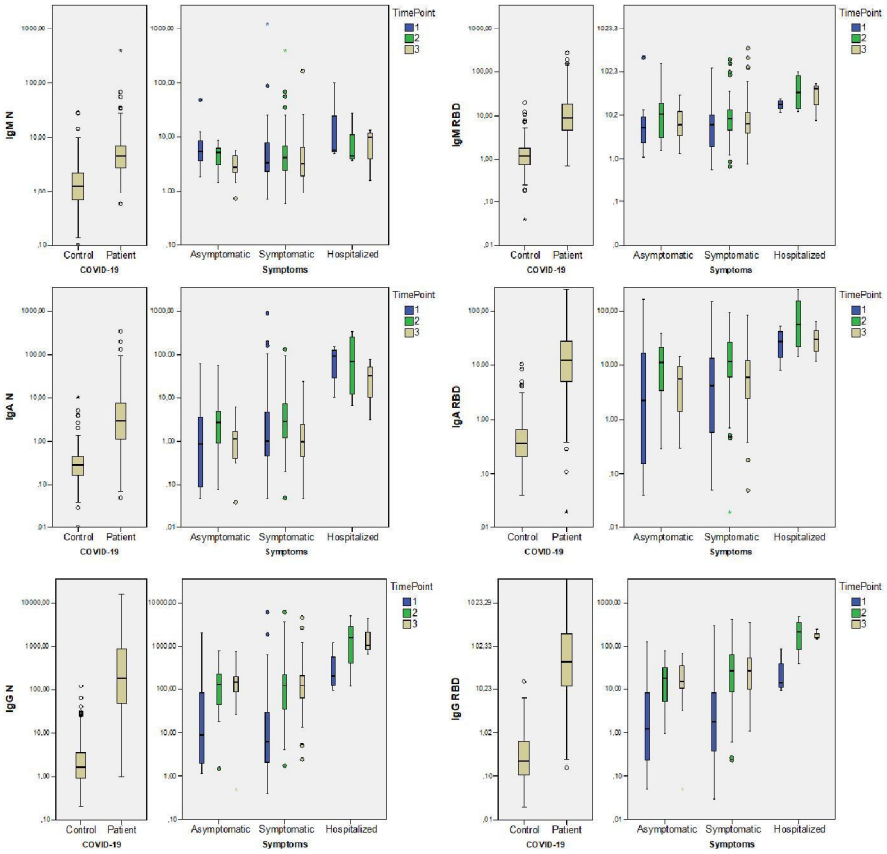


IgM and IgA

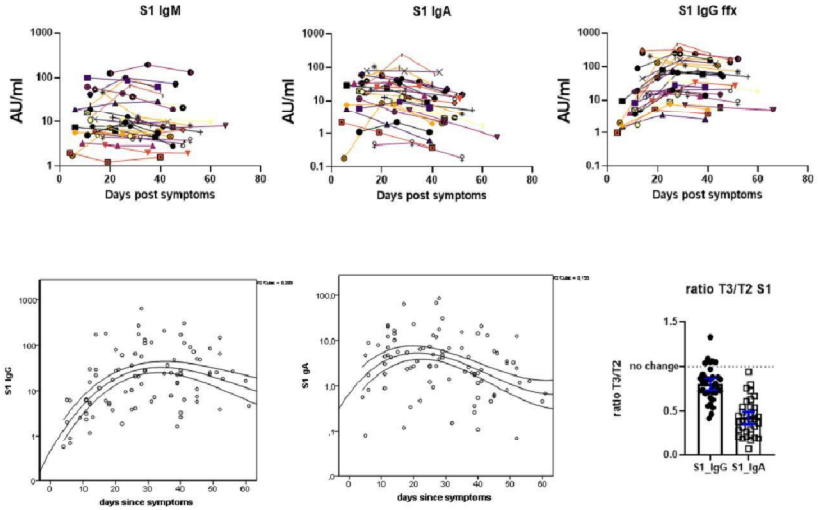

IgM S1
1000,00
100,00
10,00
1,00
,10
,01
Control
Patient
COVID-19
102,33
10,23
1,02
,10
,01
Asymptomatic
Symptomatic
Hospitalized
Symptoms
TimePoint
1
2
3


IgA S1
100,00
10,00
1,00
,10
,01
Control
Patient
COVID-19
100,00
10,00
1,00
,10
,01
Asymptomatic
Symptomatic
Hospitalized
Symptoms
TimePoint
1
2
3

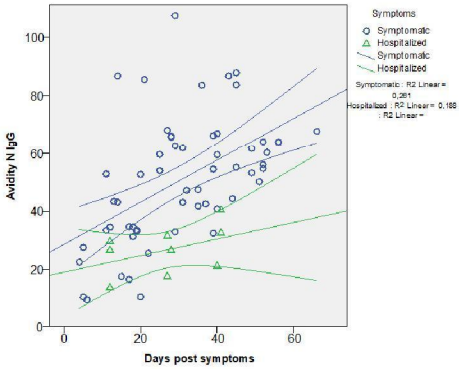
Rich dataset

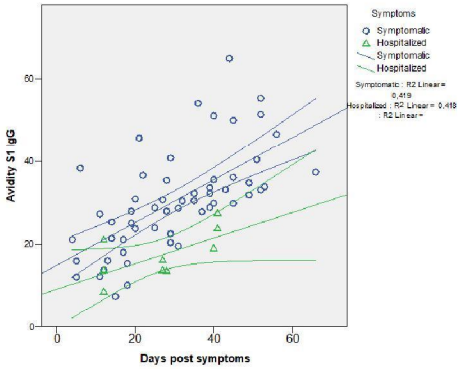


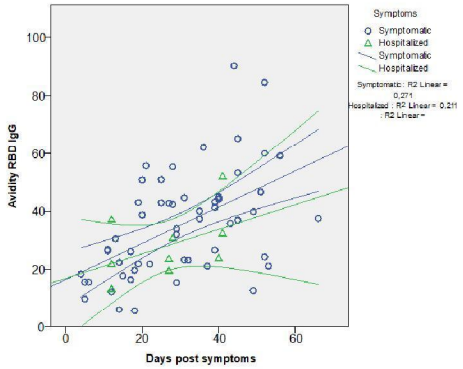
Decay rate of IgG and IgA



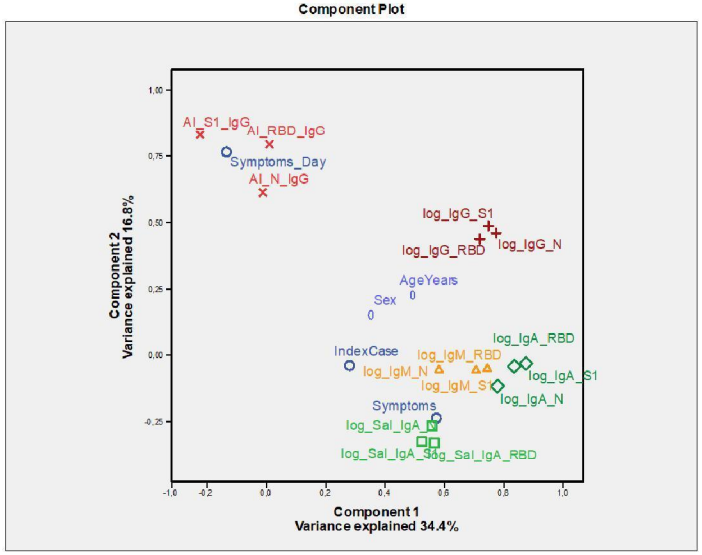
Development of IgG avidity







PCA shows


Component Plot
Component 2
Variance explained 16.8%
Component 1
Variance explained 34.4%
Al_S1_IgG
Al_RBD_IgG
Symptoms_Day
Al_N_IgG
log_IgG_S1
log_IgG_RBD
log_IgG_N
AgeYears
Sex
IndexCase
log_IgM_RBD
log_IgM_N
log_IgM_S1
log_IgA_RBD
log_IgA_S1
log_IgA_N
Symptoms
log_Sal_IgA
log_Sal_IgA_RBD

Conclusion/Discussion

- Rapid decay of IgA (and IgM)
- Rapid decay of anti-N antibodies
- Spike S1 IgG most persistent
- All concentrations decrease, avidity increases

- Two independent studies, One message
- Joined effort > joined CiB-wide (EPI IDS IIV) publication?