

# DOAC-Stop may enable proper thrombophilia investigation in patients treated with DOAC

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## Conclusion

DOAC-Stop does not affect LA-ratios but with shortening of falsely prolonged screening assays both dRVVT and APT based LA assay may decrease a number of unnecessary complete LA investigations. DOAC-Stop also prevents risk for AT-level overestimation that can lead to missed AT-deficiency in some cases.

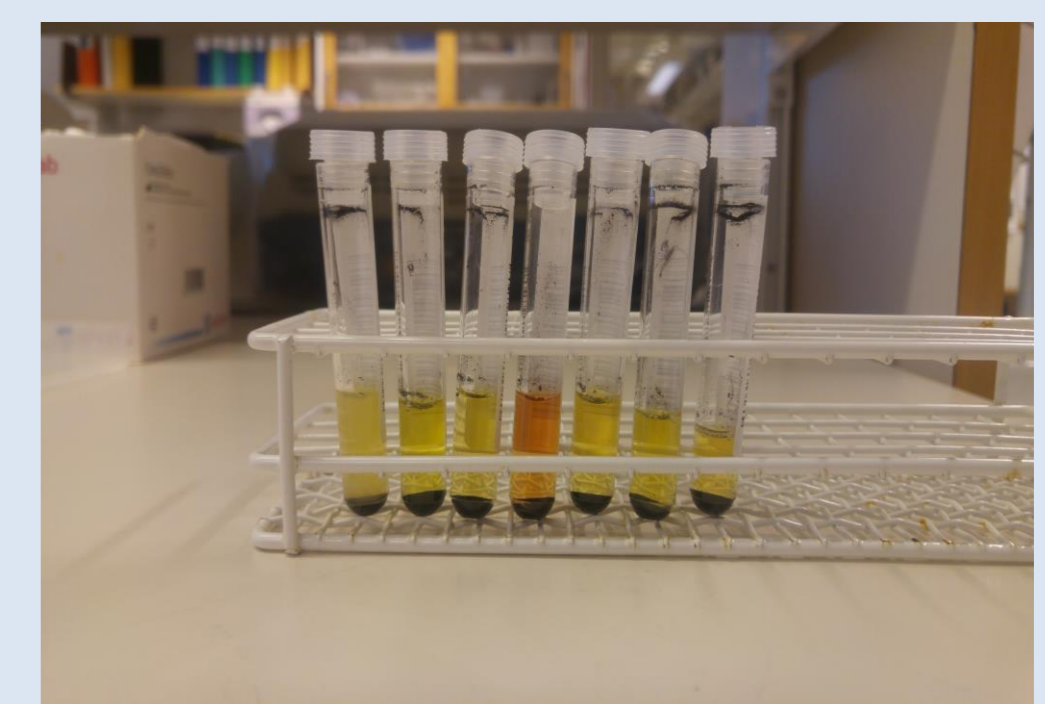
It is not realistic to use DOAC-Stop in all samples referred for thrombophilia-investigations and therefore good communication between physicians and laboratory is necessary to determine which samples may benefit of using of DOAC Stop to get true laboratory results.

## Background

Direct oral anticoagulants (DOAC) including thrombin inhibitor Dabigatran (Dab) and Xa inhibitors Rivaroxaban (Riv), Apixaban (Api) and Edoxaban (Edo) have become an alternative to Warfarin for the treatment of venous thromboembolism (VTE). Thrombophilia investigation is a part of diagnosis algorithm for VTE but DOAC influences thrombophilia assays particularly lupus anticoagulans (LA) and Antitrombin (AT). In-vitro-inhibition of DOAC using a tablet called DOAC-Stop from Haematex Research may be a possible solution for this problem.

## Method

- We have used samples from 10 patients treated with DOAC in the following concentration Dab 170-309µg/L, Riv 134-449µg/L and Api 91-213µg/L.
- We performed LA(dRVVT and APT) and AT(FIIa-based for Dab and FXa-based for Riv and Api) and concentration-measurement of respective DOAC, before and after addition of DOAC-Stop tablet.
- The samples were mixed gently for 5 minutes with DOAC-Stop-tablet and centrifuged 2 minutes on 2000g. The supernatant after centrifugation is used to the measurement after DOAC-Stop.



## Result

	LA- dRVVT sec		LA-APT sec		AT(FII-based) kIU/L		AT(FXa-based) kIU/L		DOAC ng/mL	
	Before	After	Before	After	Before	After	Before	After	Before	After
Dab n= 3	91	36	68	34	0,93	0,82			191	0,4
Riv n= 4	70	40	44	34			1,11	0,81	258	1,5
Api n= 4	52	36	35	31			1,09	0,95	137	2,7

Results presented as mean values

Both dRVVT and APT were shorted significantly after addition of DOAC-Stop in all samples. dRVVT decreased from 91 to 36 sec, 70 to 40 sec and 52 to 36 sec for Dab, Riv and Api respectively. APT decreased from 68 to 34 sec, 44 to 34 sec and 35 to 31 sec for Dab, Riv and Api respectively. dRVVT- and APT-ratio were not affected. AT(FII-based) for Dab-samples changed from an average of 0.93kIE/L to 0.82kIE/L after addition of DOAC-Stop. AT(FXa-based) mean values changed from 1.11kIE/L to 0.81kIE/L and from 1.09kIE/L to 0.95kIE/L respectively in Riv and Api samples.

DOACs were practically abolished after addition of DOAC-Stop.