



MEA Experiment Report

Drug name: **ABC**

Short name: **abc**

Drug CAS number: **11-111-11**

Dates of experiment: **20230101 to 20230102**

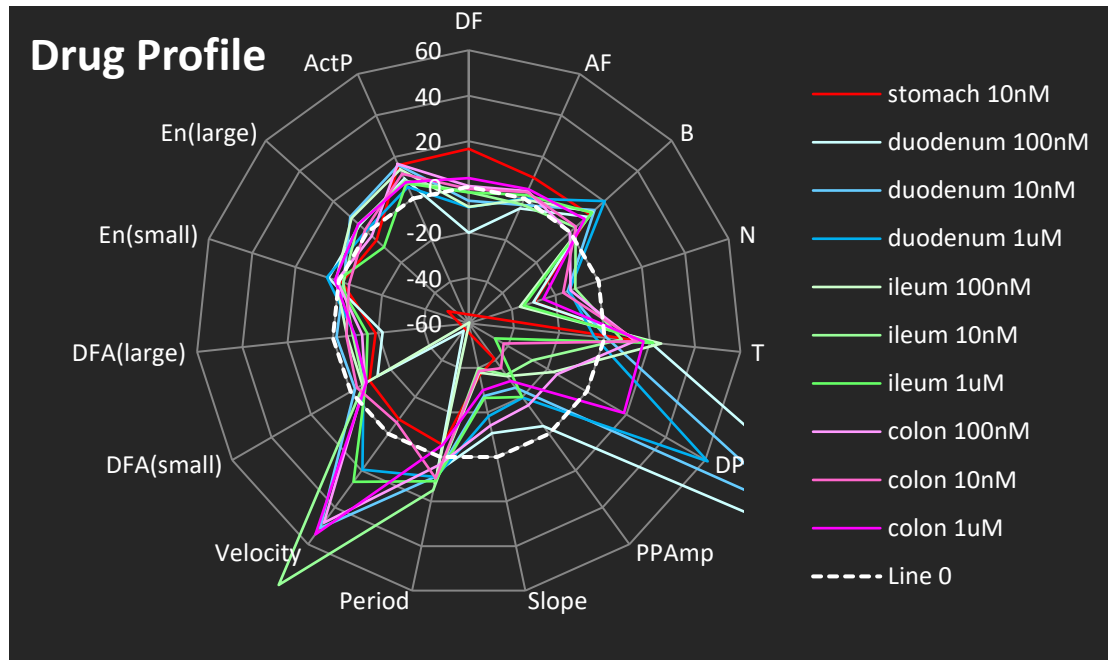
Animal model

Suncus murinus

Experiment design

Tissue	Dose	No. of repeat
colon	100nM	7
colon	1uM	9
colon	10uM	6
colon	100uM	9
duodenum	100nM	6
duodenum	1uM	7
duodenum	10uM	6
duodenum	100uM	9
ileum	100nM	6
ileum	1uM	9
ileum	10uM	8
ileum	100uM	6
stomach	100uM	7

Drug Profile



A radar diagram showing the drug profile of ABC (100nM - 1uM) effects on pacemaker potentials along the gastrointestinal tract of the *Suncus murinus*. All data are showing the mean percentage change of slow wave features include: dominant frequency (DF), average frequency (AF), percentage of brady-rhythm, normal-rhythm and tachy-rhythm, dominant power (DP), average amplitude, slope and period of waveform, average propagation velocity detrended fluctuation analysis fluctuation function (DFA), sample entropy (En) with small and large window scale and the total change in activation time pattern (ActP).



Drug Affinity Data Value (from IUPHAR)

Ligand ID: **123123**

target	target_species	type	action	affinity_units	aff_low	aff_median	aff_high
ABC	Human	Agonist	Full agonist	pKi	• 4.1	• NaN	• 4.2
ABC	Rat	Agonist	Full agonist	pKi	• 5.1	• NaN	• 5.2
ABC	Human	Agonist	Full agonist	pKi	• 6.1	• NaN	• 6.2
ABC	Human	Agonist	Full agonist	pKi	• 7.1	• NaN	• 7.2
ABC	Rat	Agonist	Full agonist	pKi	• NaN	• 8.1	• NaN
ABC	Human	Agonist	Full agonist	pKi	• NaN	• 9.1	• NaN
ABC	Human	Agonist	Full agonist	pKi	• NaN	• 10.1	• NaN



Side effects and indications (from SIDER)

Code	Abb	Name
CID100000123	abc	ABC
Side effects	Anxiety, Nausea, Vomiting	
Indications	Hypotension, Renal failure	

SAMPLE



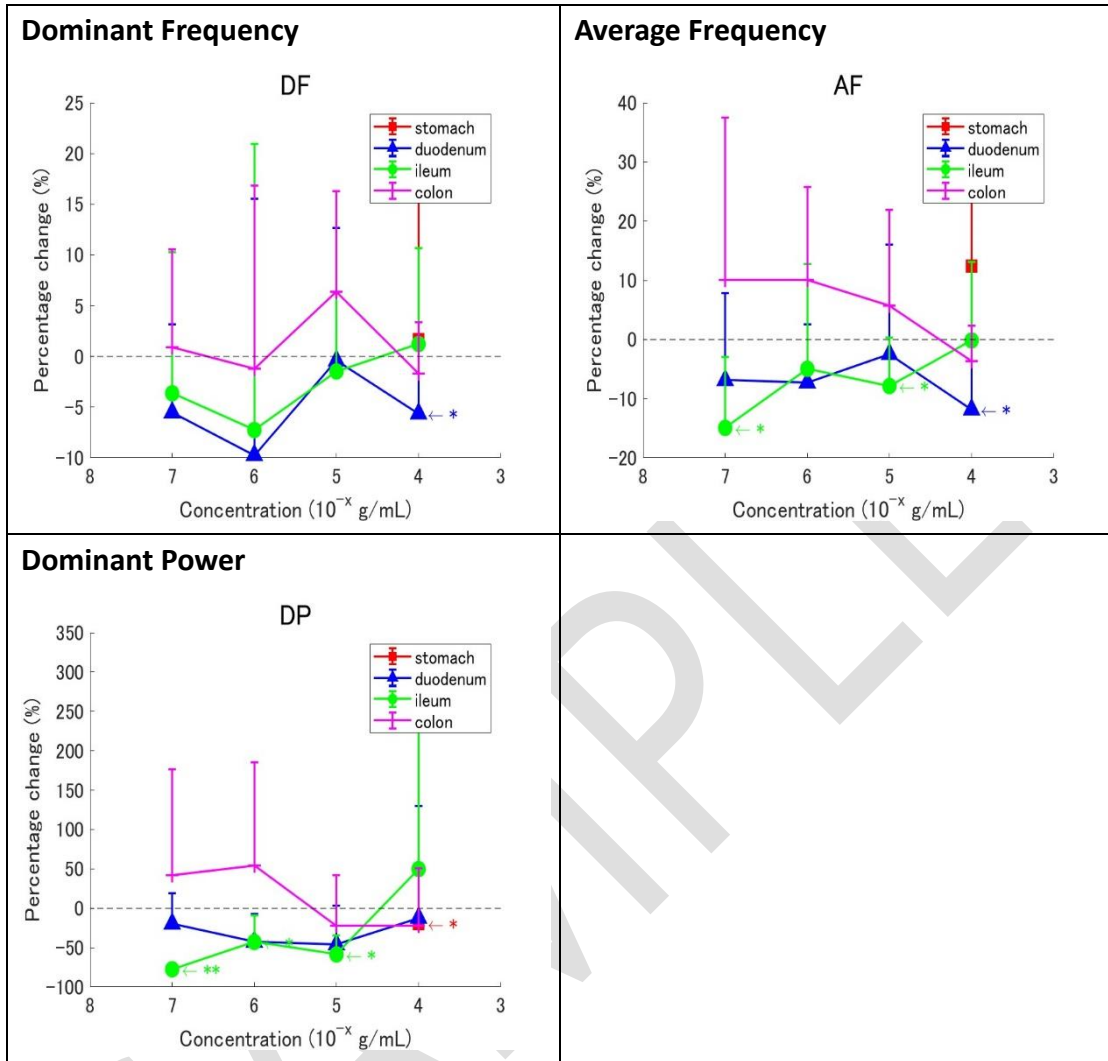
Reported side effects frequency

SE	MinFreq(%)	MaxFreq(%)
----	------------	------------

SAMPLE

Slow wave features

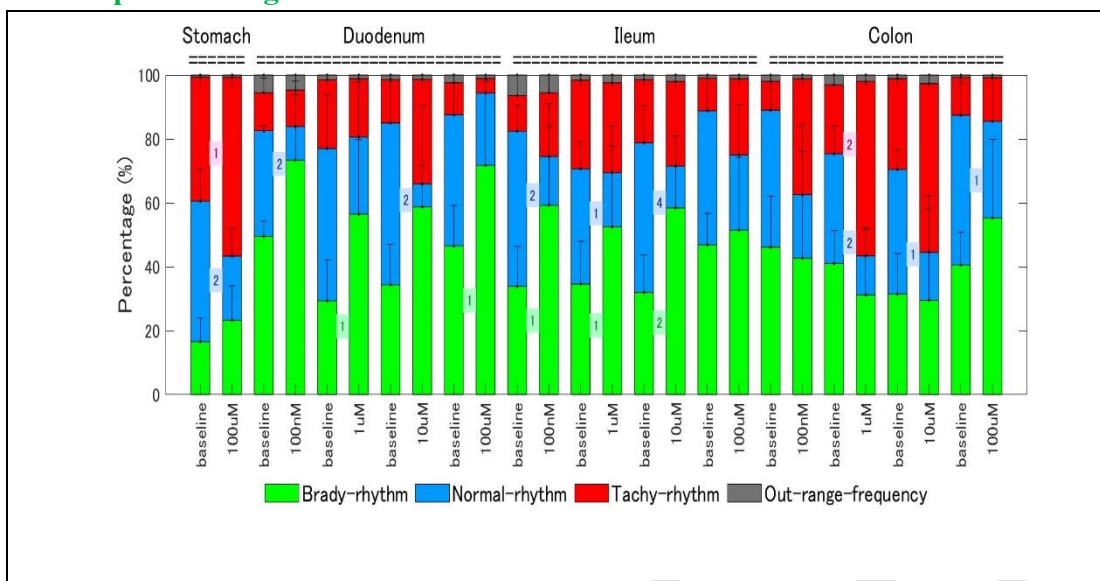
Power spectral analysis



Effects of ABC (100nM - 100uM) on pacemaker potentials in terms of power spectral analysis along the gastrointestinal tract of the *Suncus murinus*. All data and error bars represent the mean percentage change values and the standard derivations. Significant differences of the true means in the post-drug data relative to the baseline are indicated as '*' for p < 0.05, '**' for p < 0.01, '***' for p < 0.001 and '****' for p < 0.0001 (paired t-tests).

Comments:

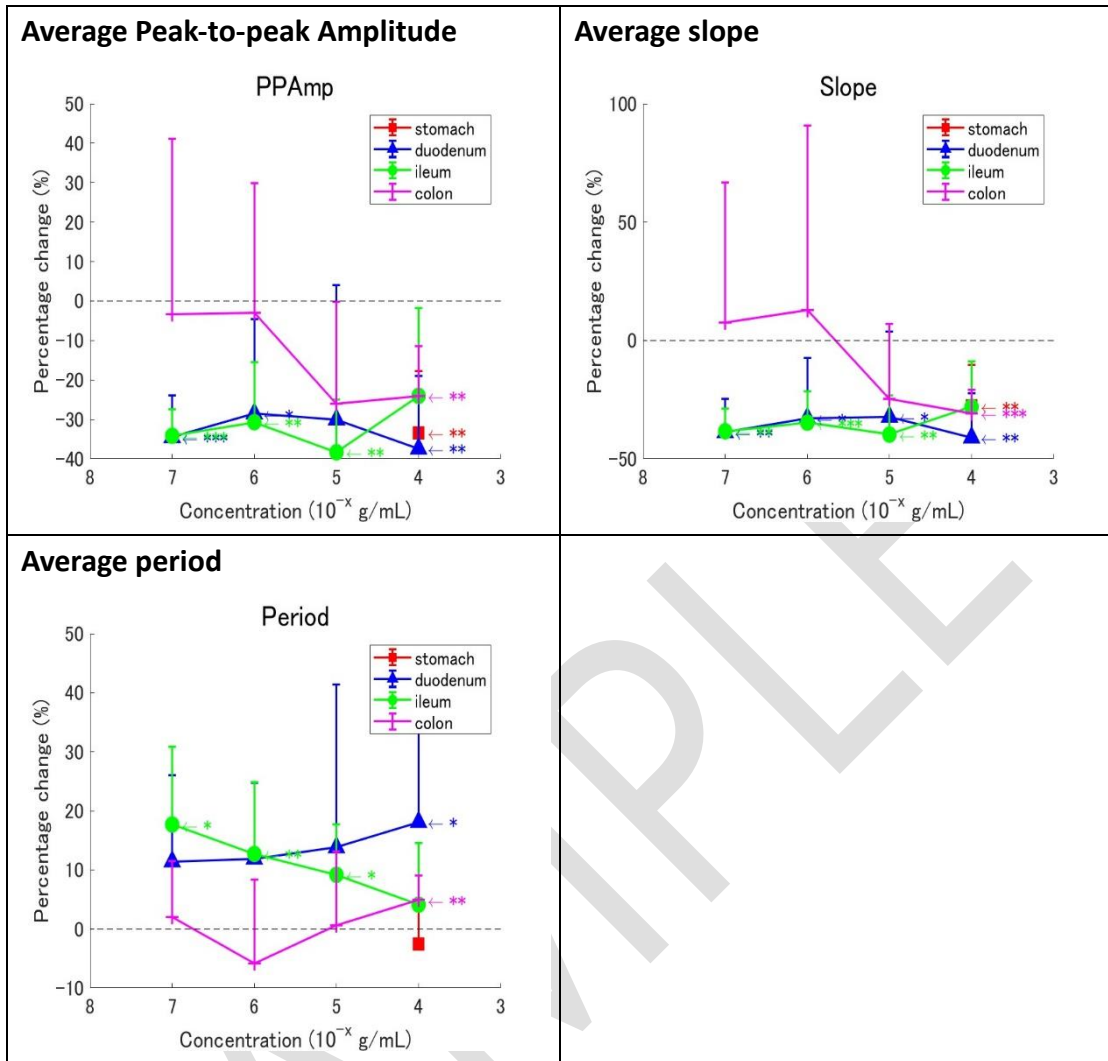
Power spectrum segmentation



Stacked histograms showing the effects of ABC (100nM - 100uM) on frequency partition of power spectrum along the gastrointestinal tract of the *Suncus murinus*. The dominant frequency was first defined by the baseline, and changes in the percentage of frequency ranges were compared between the recordings at the baseline and post-drug treatment. Power spectrum was constructed using fast Fourier transform with 2,048 bin size and Hanning window. Dominant frequency (DF) is defined as the frequency bin with the highest power. Percentage of normal-rhythm range is defined as the percentage of power within $DF \pm 1$ frequency bins over total power (within 0 – 50 cpm). Percentage of brady-rhythm range is defined as the percentage of power within $2 - (DF - 1)$ cpm over total power. Percentage of tachy-rhythm range is defined as the percentage of power within $(DF + 1) - 40$ cpm over total power. Out-range frequencies are defined as the percentage of power < 2 cpm and > 40 cpm over total power. Significant differences relative to the baseline are indicated as '1' for $p < 0.05$, '2' for $p < 0.01$, '3' for $p < 0.001$, '4' for $p < 0.0001$ (paired t-tests).

Comments

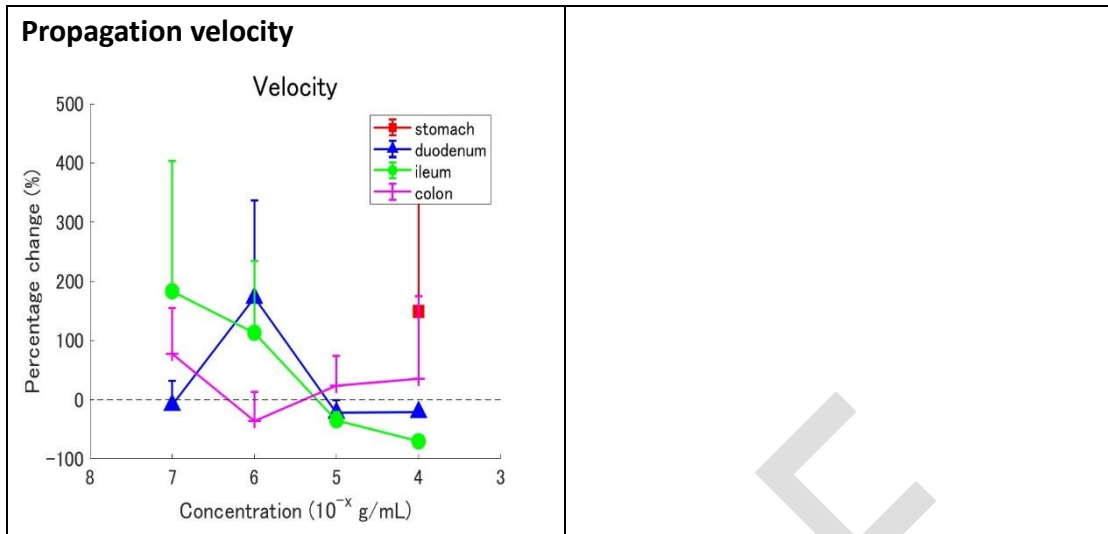
Waveform analysis



Effects of ABC (100nM - 100uM) on pacemaker potentials in terms of waveform analysis along the gastrointestinal tract of the *Suncus murinus*. All data and error bars represent the mean percentage change values and the standard derivations. Significant differences of the true means in the post-drug data relative to the baseline are indicated as '*' for p < 0.05, '**' for p < 0.01, '***' for p < 0.001 and '****' for p < 0.0001 (paired t-tests).

Comments:

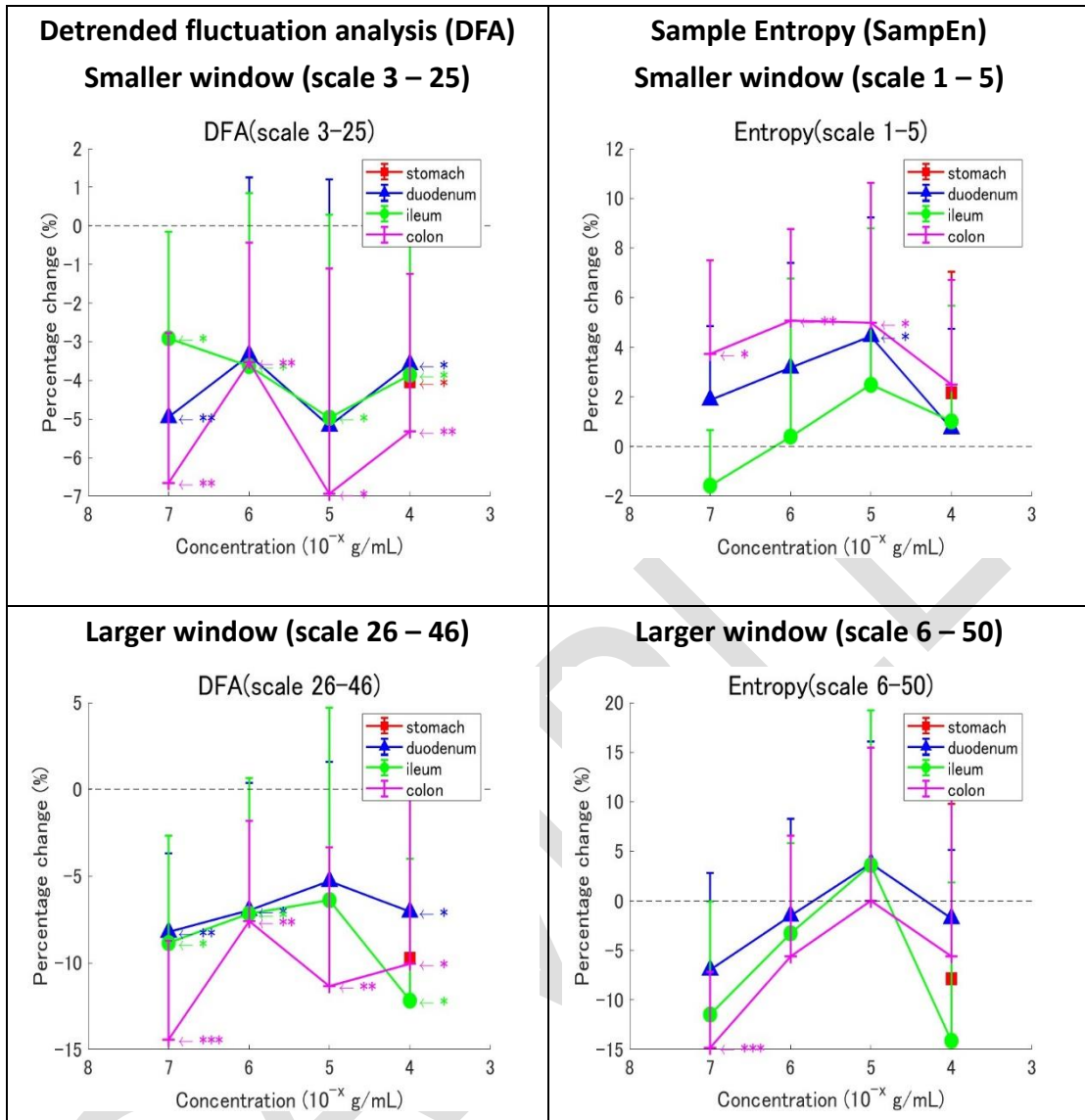
Phase analysis



Effects of ABC (100nM - 100uM) on pacemaker potentials in terms of phase analysis along the gastrointestinal tract of the *Suncus murinus*. All data and error bars represent the mean percentage change values and the standard derivations. Significant differences of the true means in the post-drug data relative to the baseline are indicated as '*' for $p < 0.05$, '**' for $p < 0.01$, '***' for $p < 0.001$ and '****' for $p < 0.0001$ (paired t-tests).

Comments:

Signal stability and variability analysis

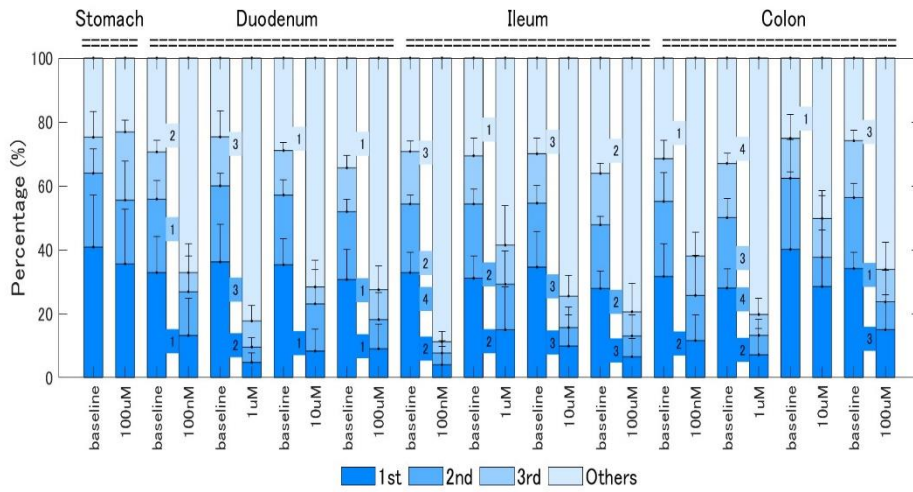


Effects of ABC (100nM - 100uM) on pacemaker potentials in terms of signal stability and variability along the gastrointestinal tract of the *Suncus murinus*. All data and error bars represent the mean percentage change values and the standard derivations. Significant differences of the true means in the post-drug data relative to the baseline are indicated as '*' for p < 0.05, '**' for p < 0.01 and '***' for p < 0.001 and '****' for p < 0.0001 (paired t-tests).

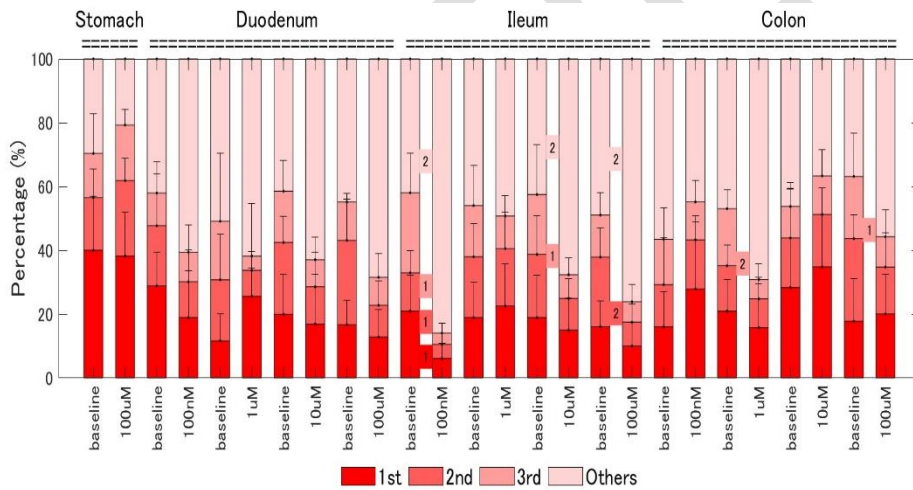
Comments:

Pattern analysis

Dominant Pattern based on Baseline data



Dominant Pattern based on Post-drug data



Effects of ABC (100nM - 100uM) on pacemaker potentials determined by the activation time pattern distribution along the gastrointestinal tract of the *Suncus murinus*. The pattern distribution of the first three dominant activation time patterns based on the (above) baseline and (below) post-drug recordings. All data and error bars represent the means values and the standard derivations. Significant differences relative to the baseline are indicated as '1' for $p < 0.05$, '2' for $p < 0.01$, '3' for $p < 0.001$ and '4' for $p < 0.0001$ (paired t-tests).

Comments: