Figure 1

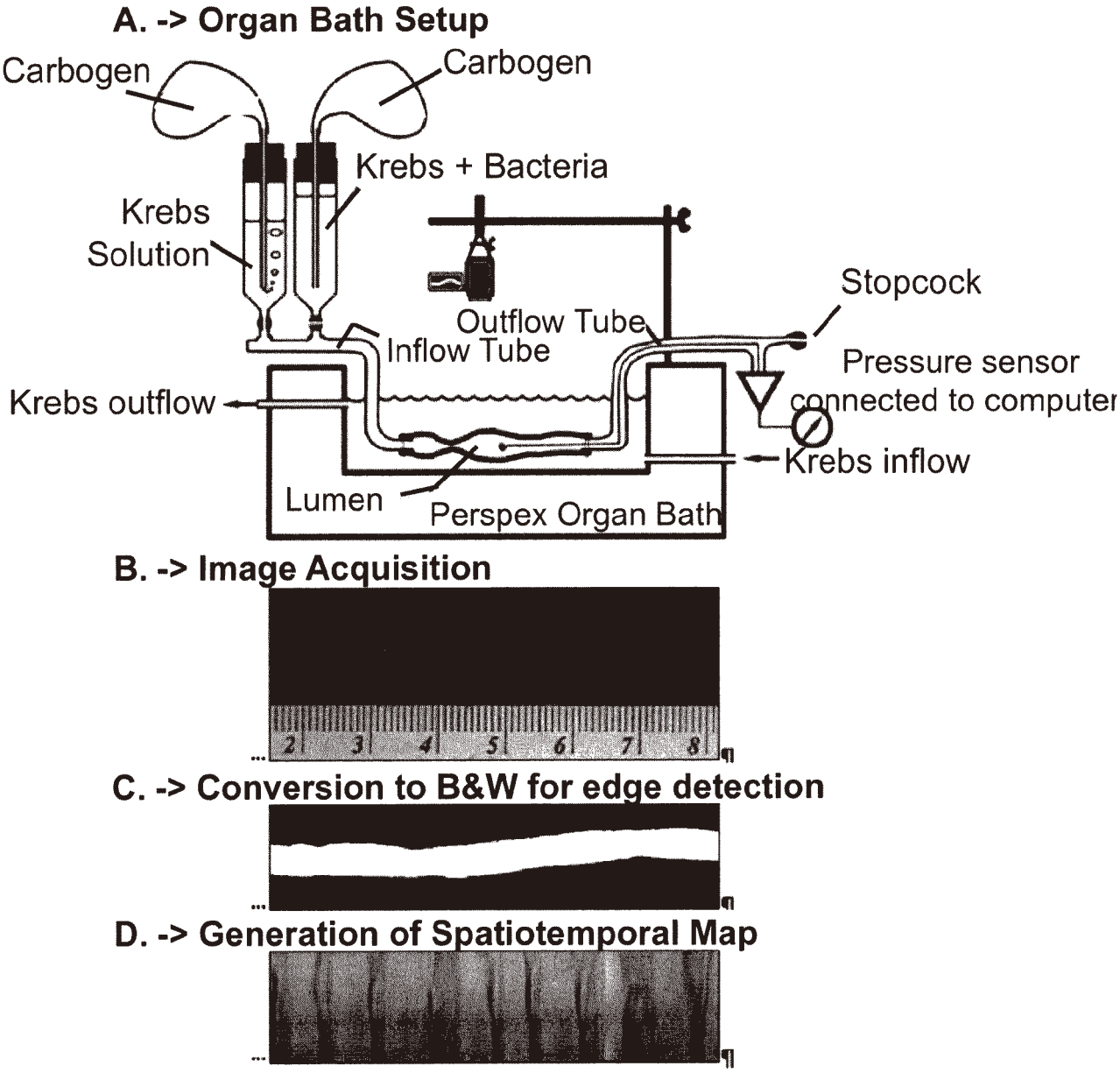

A. -> Organ Bath Setup
Carbogen
Carbogen
Krebs + Bacteria
Krebs
Solution
Stopcock
Outflow Tube
Inflow Tube
Pressure sensor
connected to computer
Krebs outflow
Krebs inflow
Lumen
Perspex Organ Bath
B. -> Image Acquisition
C. -> Conversion to B&W for edge detection
D. -> Generation of Spatiotemporal Map

Figure 2

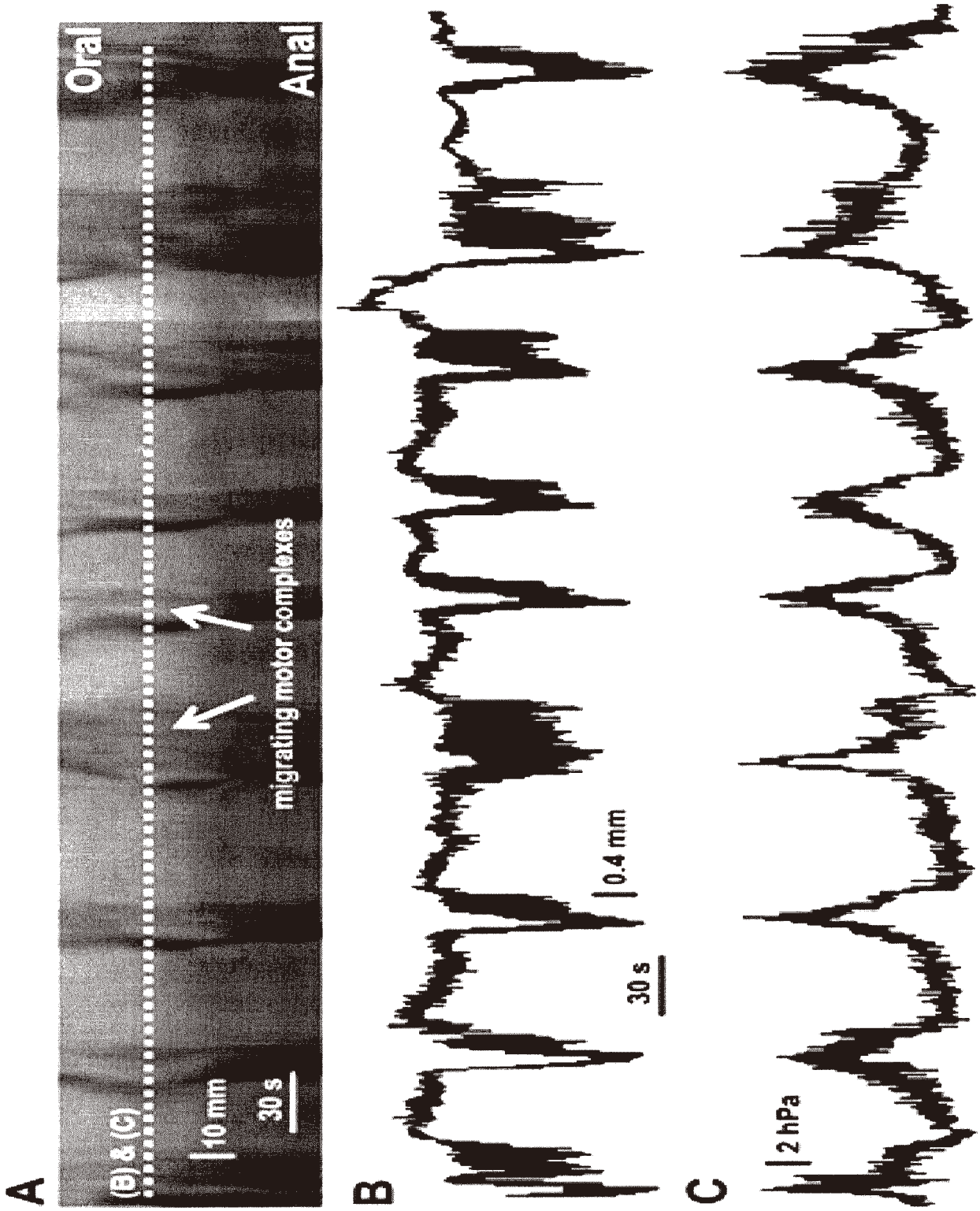

A
Oral
Anal
(B) & (C)
10 mm
30 s
migrating motor complexes
B
0.4 mm
30 s
C
2 hPa

Figure 3

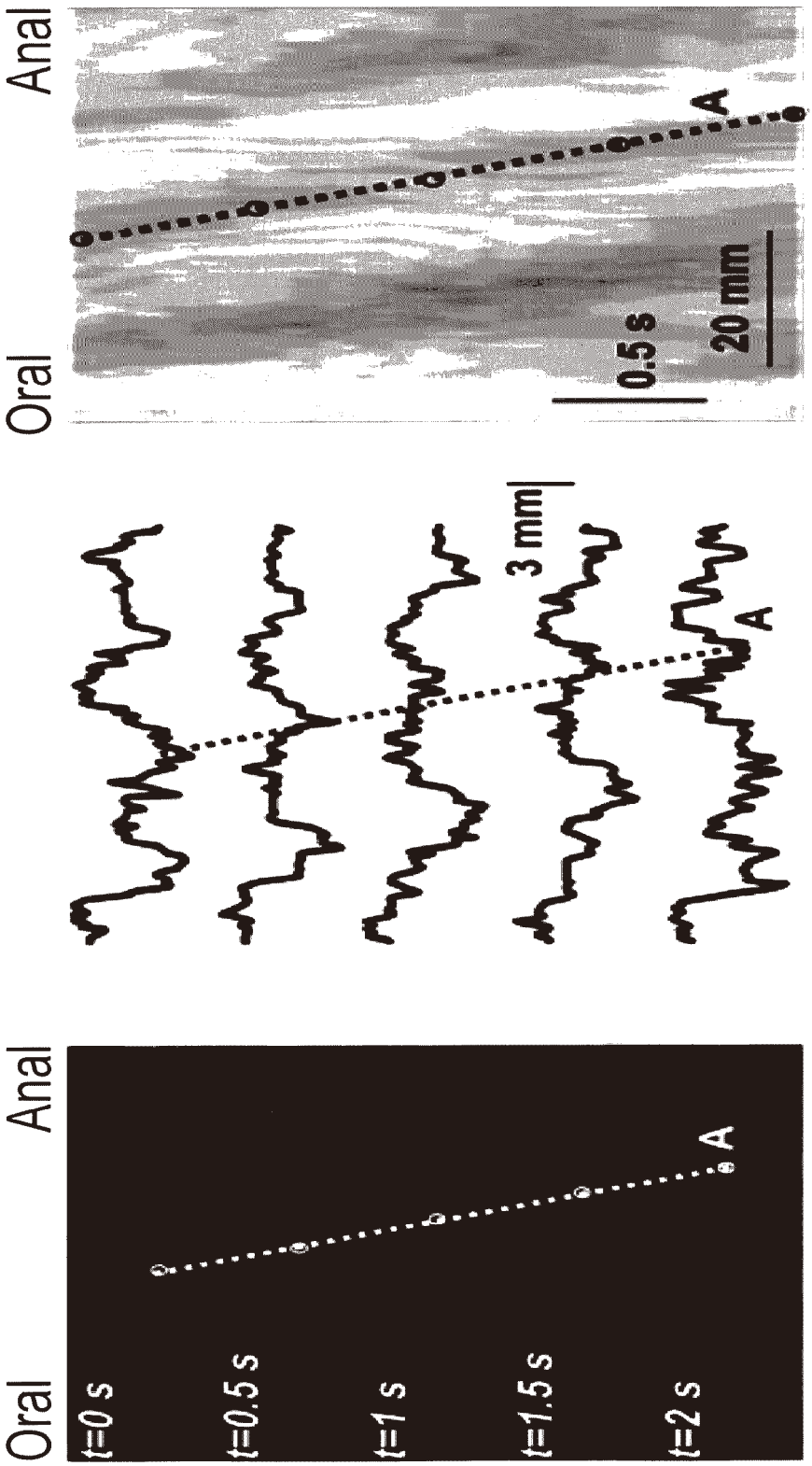


Figure 4

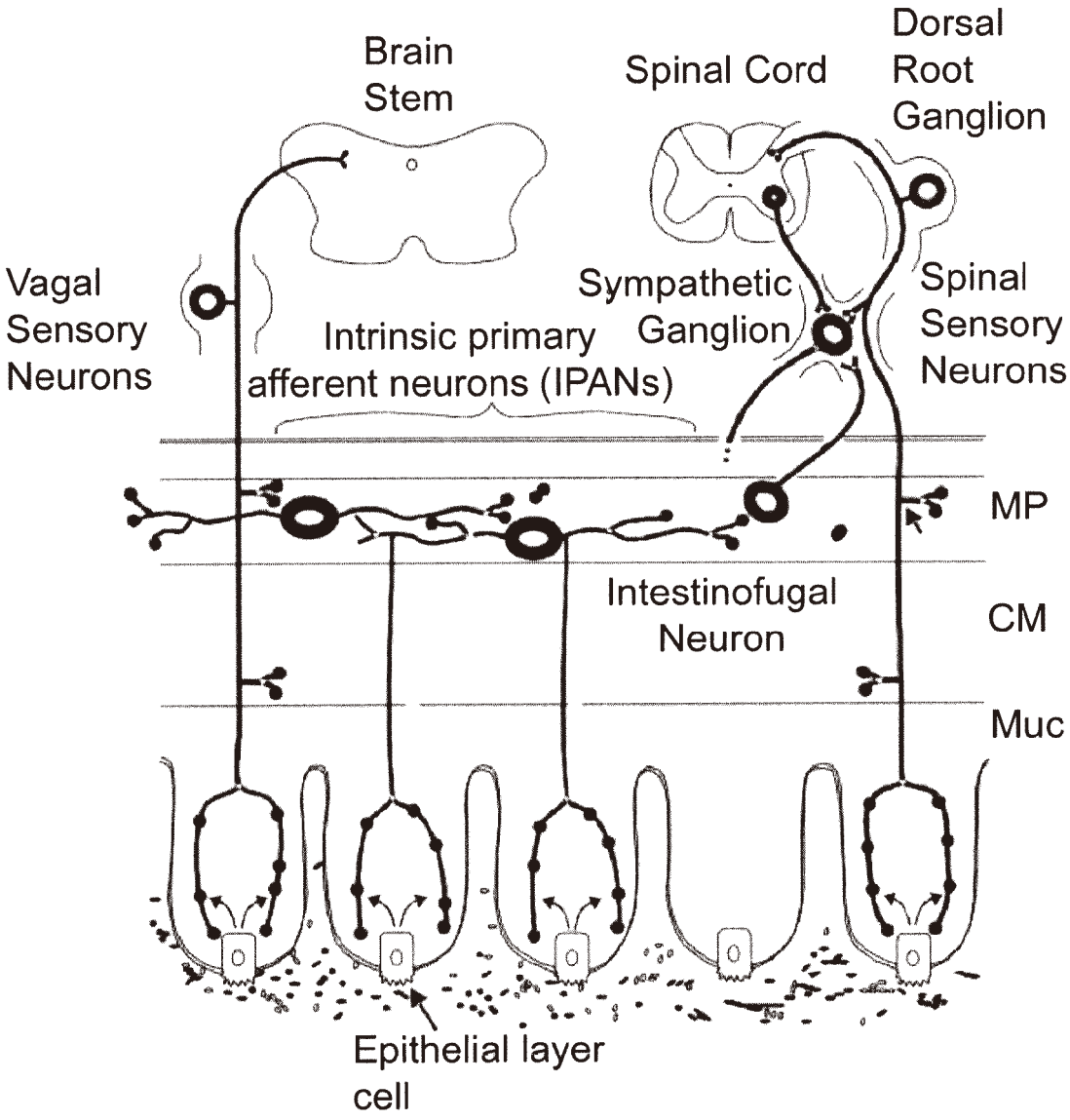

Brain
Stem
Spinal Cord
Dorsal
Root
Ganglion
Vagal
Sensory
Neurons
Sympathetic
Ganglion
Spinal
Sensory
Neurons
Intrinsic primary
afferent neurons (IPANs)
MP
Intestinofugal
Neuron
CM
Muc
Epithelial layer
cell

Figure 5

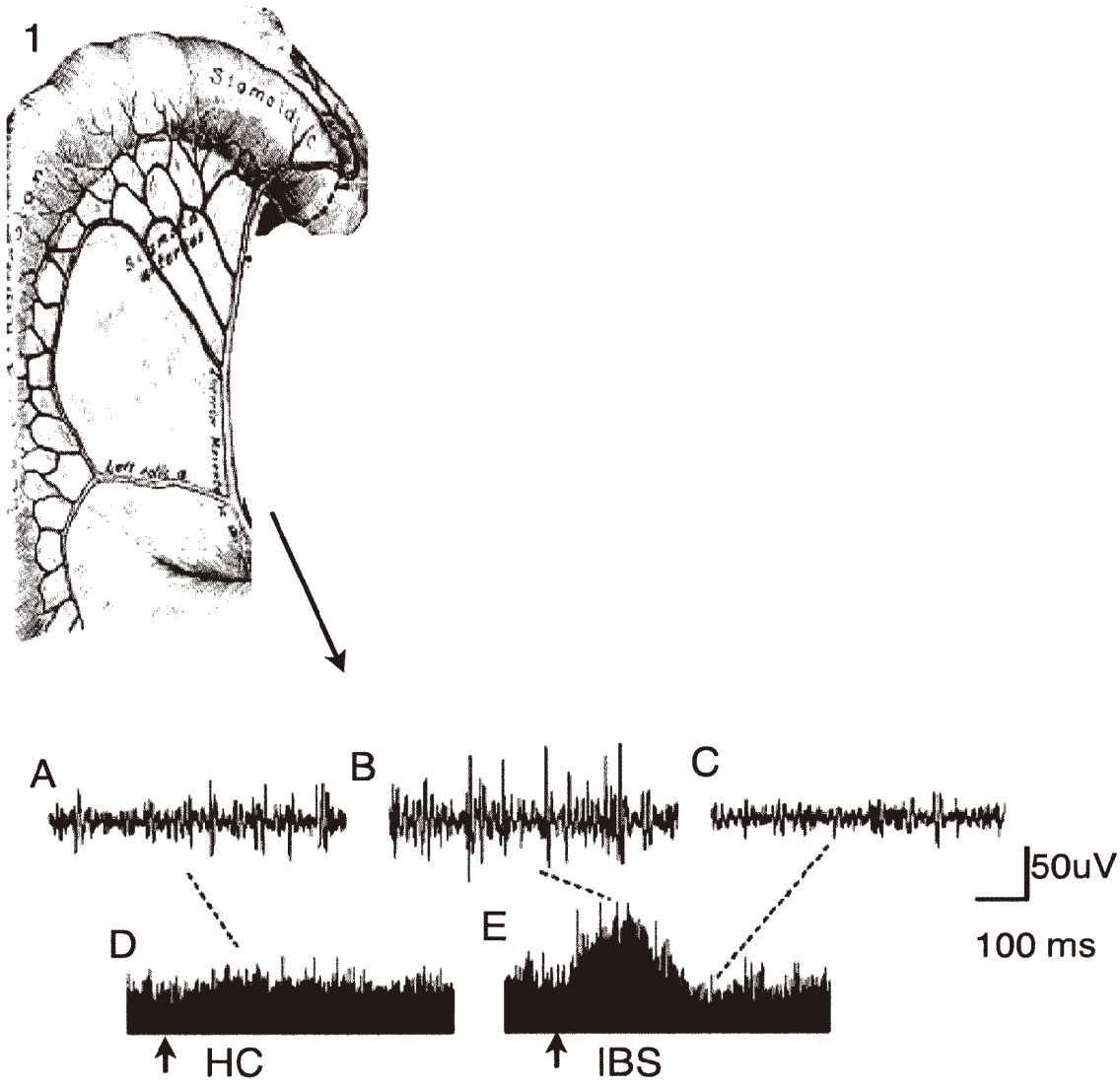


Figure 6

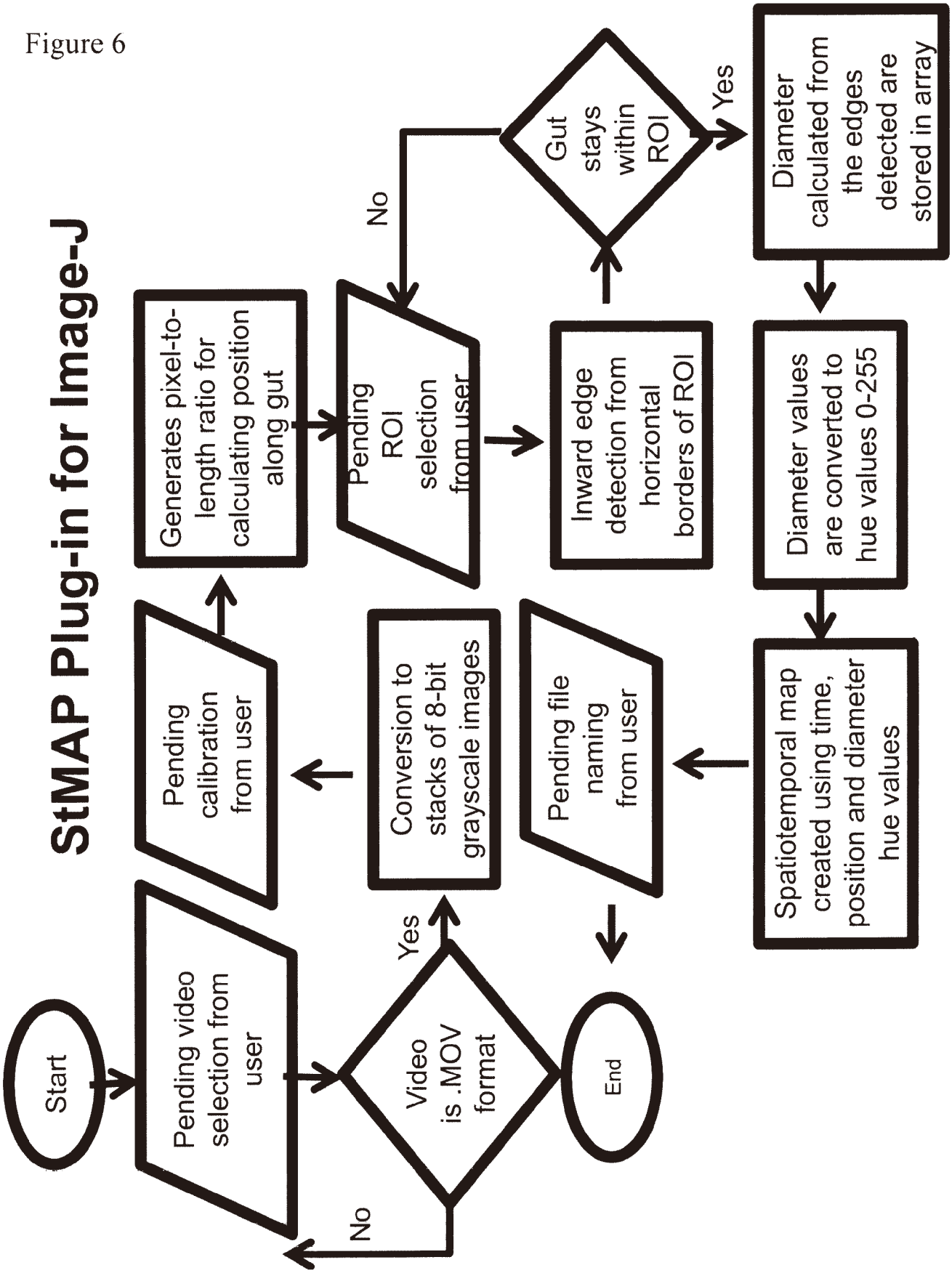

StMAP Plug-in for Image-J
Start
Pending video selection from user
Video is .MOV format
No
Yes
Pending calibration from user
Conversion to stacks of 8-bit grayscale images
Pending file naming from user
End
Generates pixel-to-length ratio for calculating position along gut
Pending ROI selection from user
Inward edge detection from horizontal borders of ROI
Gut stays within ROI
No
Yes
Diameter calculated from the edges detected are stored in array
Diameter values are converted to hue values 0-255
Spatiotemporal map created using time, position and diameter hue values

Figure 7

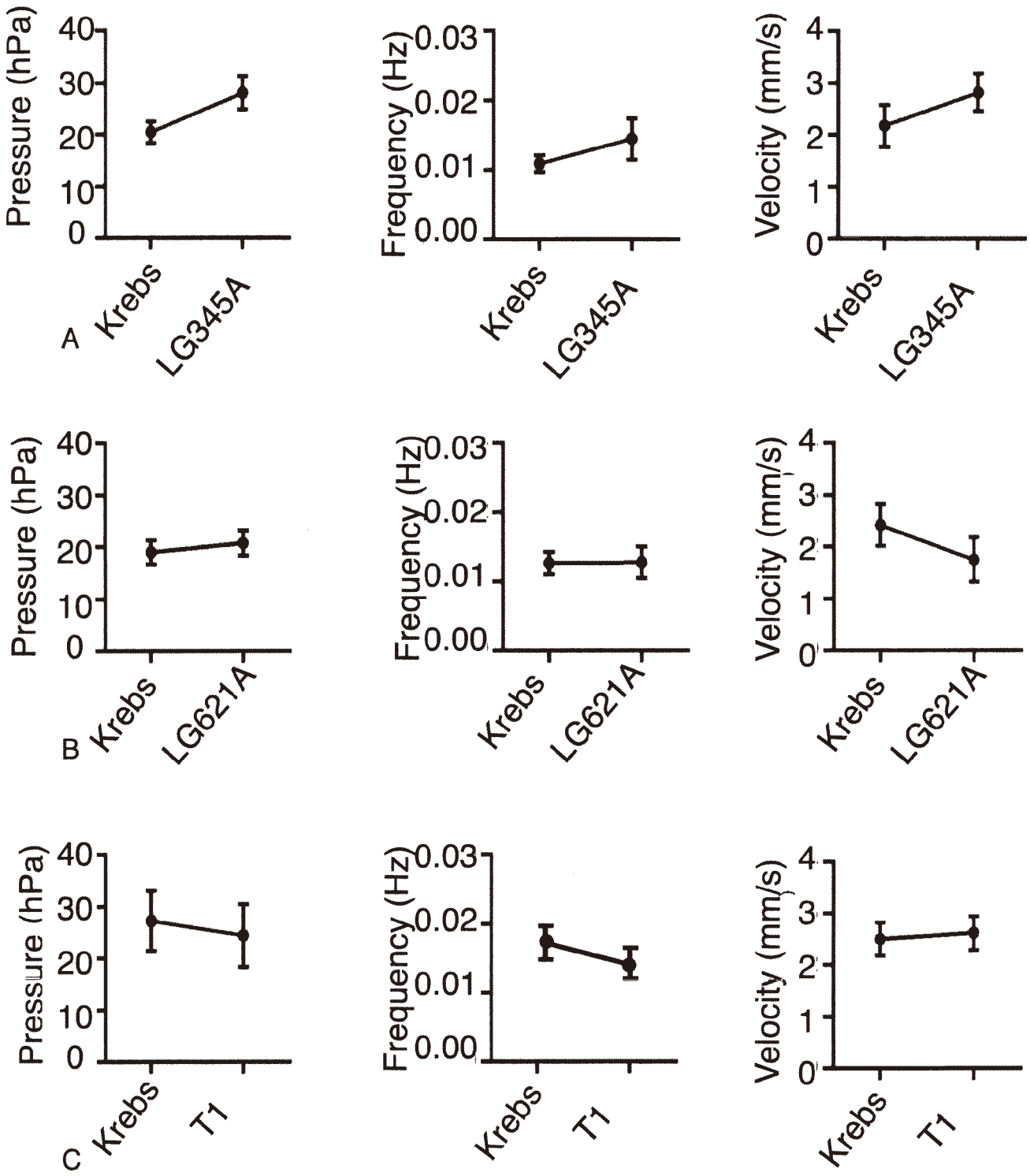

Pressure (hPa)
40
30
20
10
0
Krebs
LG345A
A
Frequency (Hz)
0.03
0.02
0.01
0.00
Krebs
LG345A
Velocity (mm/s)
4
3
2
1
0
Krebs
LG345A
Pressure (hPa)
40
30
20
10
0
Krebs
LG621A
B
Frequency (Hz)
0.03
0.02
0.01
0.00
Krebs
LG621A
Velocity (mm/s)
4
3
2
1
0
Krebs
LG621A
Pressure (hPa)
40
30
20
10
0
Krebs
T1
C
Frequency (Hz)
0.03
0.02
0.01
0.00
Krebs
T1
Velocity (mm/s)
4
3
2
1
0
Krebs
T1

Figure 7 (continued)

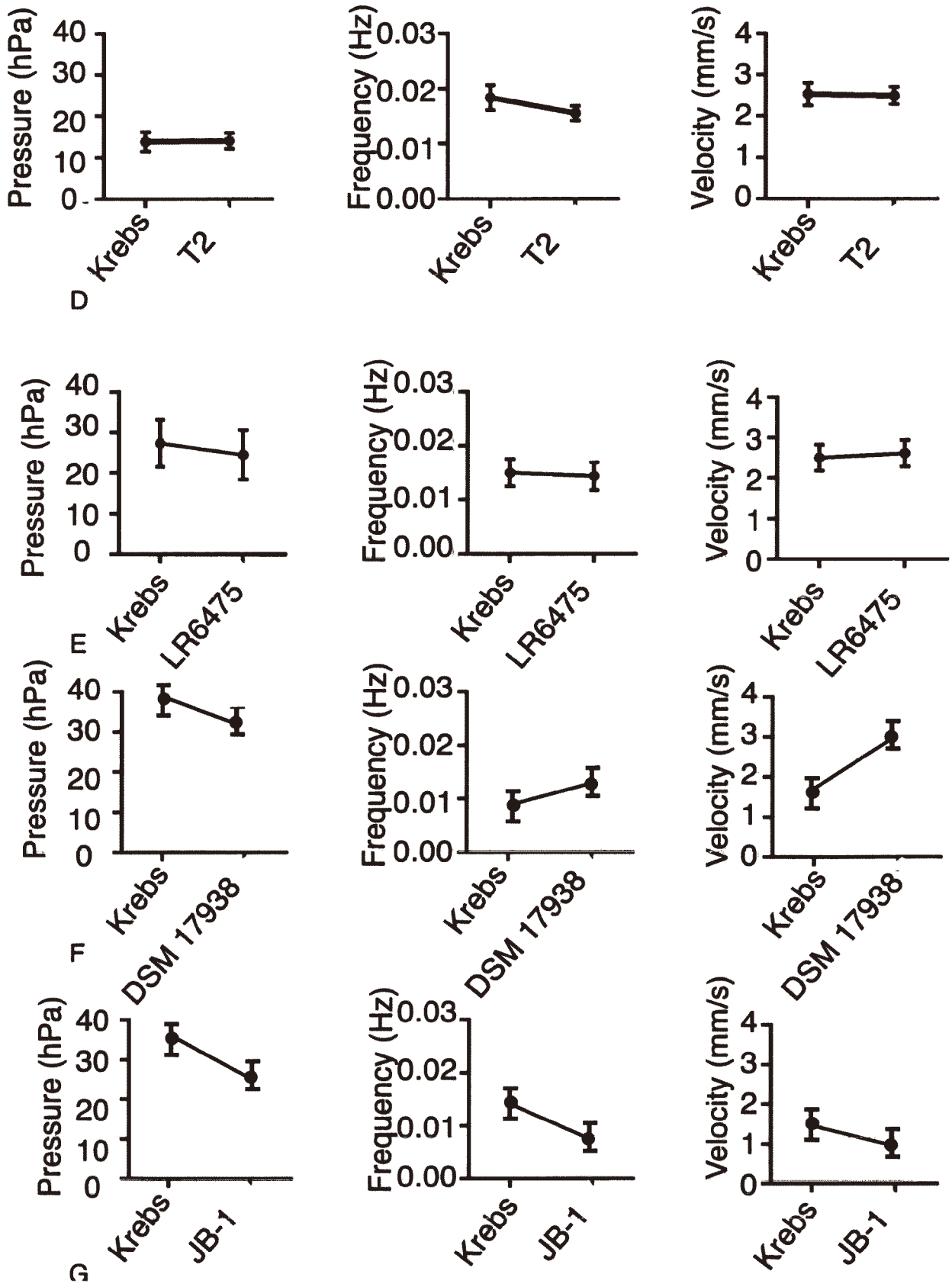
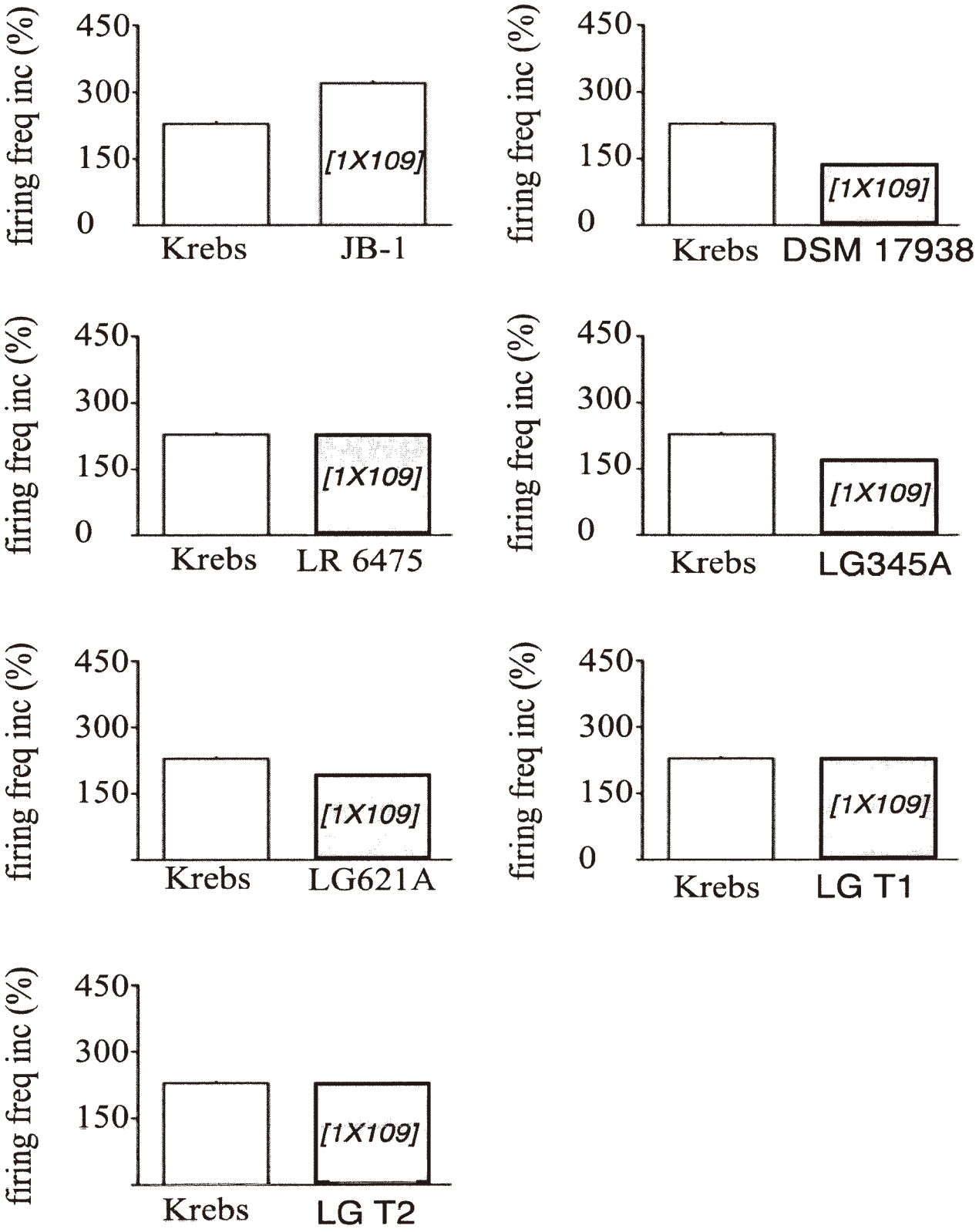


Figure8


firing freq inc (%)
450
300
150
0
[1X109]
Krebs
JB-1
DSM 17938
LR 6475
LG345A
LG621A
LG T1
LG T2