```
(***Volume of the rectangular solid formed by each counting bin: 50 um length,
821 um width across 6 histological sections per animal***)

volume = NIntegrate[Interpolation[Table[N@(50 * 821 * 10^-6), {6}]][x], {x, 1, 6}];
(**x10^-6 for mm^3**)

(***Corticocortical projection neuron number as a
 function of depth (50 um bins) from pia for all animals***)

allCCcellCountsVsDepth =
  {{{{0, 0}, {50, 0}, {100, 1}, {150, 1}, {200, 1}, {250, 0}, {300, 0}, {350, 0}, {400, 0},
     {450, 2}, {500, 8}, {550, 3}, {600, 1}, {650, 1}, {700, 2}, {750, 3}, {800, 8}, {850, 1},
     {900, 0}, {950, 0}, {1000, 0}}, {{0, 0}, {50, 0}, {100, 1}, {150, 1}, {200, 0},
     {250, 0}, {300, 0}, {350, 0}, {400, 2}, {450, 14}, {500, 4}, {550, 2}, {600, 1},
     {650, 3}, {700, 5}, {750, 0}, {800, 2}, {850, 4}, {900, 4}, {950, 0}, {1000, 0}},
    {{0, 0}, {50, 0}, {100, 2}, {150, 0}, {200, 1}, {250, 0}, {300, 0},
     {350, 4}, {400, 14}, {450, 3}, {500, 1}, {550, 1}, {600, 1}, {650, 0},
     {700, 1}, {750, 1}, {800, 2}, {850, 0}, {900, 0}, {950, 0}, {1000, 0}},
    {{0, 0}, {50, 0}, {100, 0}, {150, 0}, {200, 1}, {250, 0}, {300, 0},
     {350, 0}, {400, 1}, {450, 9}, {500, 2}, {550, 0}, {600, 1}, {650, 4},
     {700, 1}, {750, 2}, {800, 0}, {850, 2}, {900, 3}, {950, 0}, {1000, 0}},
    {{0, 0}, {50, 0}, {100, 1}, {150, 0}, {200, 0}, {250, 0}, {300, 0},
     {350, 0}, {400, 1}, {450, 13}, {500, 1}, {550, 3}, {600, 2}, {650, 1},
     {700, 1}, {750, 0}, {800, 3}, {850, 0}, {900, 0}, {950, 0}, {1000, 0}},
    {{0, 0}, {50, 0}, {100, 1}, {150, 0}, {200, 0}, {250, 0}, {300, 0}, {350, 0},
     {400, 1}, {450, 13}, {500, 9}, {550, 1}, {600, 1}, {650, 3}, {700, 2},
     {750, 3}, {800, 0}, {850, 7}, {900, 0}, {950, 0}, {1000, 0}}},
   {{{0, 0}, {50, 0}, {100, 2}, {150, 2}, {200, 0}, {250, 0}, {300, 0}, {350, 0},
     {400, 4}, {450, 11}, {500, 4}, {550, 4}, {600, 5}, {650, 2}, {700, 1},
     {750, 1}, {800, 1}, {850, 1}, {900, 0}, {950, 0}, {1000, 0}},
    {{0, 0}, {50, 0}, {100, 3}, {150, 2}, {200, 0}, {250, 1}, {300, 0},
     {350, 0}, {400, 2}, {450, 22}, {500, 4}, {550, 2}, {600, 5}, {650, 4},
     {700, 7}, {750, 2}, {800, 3}, {850, 2}, {900, 2}, {950, 0}, {1000, 0}},
    {{0, 0}, {50, 0}, {100, 5}, {150, 0}, {200, 0}, {250, 0}, {300, 0},
     {350, 0}, {400, 1}, {450, 12}, {500, 8}, {550, 5}, {600, 2}, {650, 3},
     {700, 4}, {750, 3}, {800, 4}, {850, 1}, {900, 0}, {950, 0}, {1000, 0}},
    {{0, 0}, {50, 0}, {100, 1}, {150, 1}, {200, 0}, {250, 0}, {300, 0},
     {350, 2}, {400, 11}, {450, 14}, {500, 7}, {550, 4}, {600, 5}, {650, 6},
     {700, 1}, {750, 1}, {800, 1}, {850, 1}, {900, 0}, {950, 0}, {1000, 0}},
    {{0, 0}, {50, 0}, {100, 2}, {150, 0}, {200, 1}, {250, 0}, {300, 0},
     {350, 3}, {400, 9}, {450, 13}, {500, 4}, {550, 6}, {600, 0}, {650, 4},
     {700, 1}, {750, 1}, {800, 1}, {850, 0}, {900, 0}, {950, 0}, {1000, 0}},
    {{0, 0}, {50, 0}, {100, 0}, {150, 0}, {200, 0}, {250, 0}, {300, 0}, {350, 0},
     {400, 5}, {450, 8}, {500, 3}, {550, 1}, {600, 1}, {650, 2}, {700, 2},
     {750, 7}, {800, 0}, {850, 0}, {900, 0}, {950, 0}, {1000, 0}}},
   {{{0, 0}, {50, 0}, {100, 0}, {150, 0}, {200, 0}, {250, 0}, {300, 0}, {350, 0},
     {400, 0}, {450, 5}, {500, 11}, {550, 2}, {600, 1}, {650, 1}, {700, 2},
     {750, 1}, {800, 0}, {850, 0}, {900, 1}, {950, 0}, {1000, 0}},
    {{0, 0}, {50, 0}, {100, 1}, {150, 1}, {200, 0}, {250, 0}, {300, 0},
     {350, 0}, {400, 0}, {450, 5}, {500, 4}, {550, 4}, {600, 3}, {650, 0},
     {700, 0}, {750, 0}, {800, 0}, {850, 1}, {900, 1}, {950, 1}, {1000, 0}},
    {{0, 0}, {50, 0}, {100, 0}, {150, 0}, {200, 0}, {250, 0}, {300, 0},
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    {350, 0}, {400, 0}, {450, 4}, {500, 10}, {550, 2}, {600, 2}, {650, 1},
    {700, 0}, {750, 0}, {800, 0}, {850, 0}, {900, 0}, {950, 0}, {1000, 0}},
   {{0, 0}, {50, 0}, {100, 0}, {150, 0}, {200, 0}, {250, 0}, {300, 0},
    {350, 0}, {400, 0}, {450, 7}, {500, 4}, {550, 3}, {600, 0}, {650, 2},
    {700, 1}, {750, 1}, {800, 0}, {850, 0}, {900, 0}, {950, 0}, {1000, 0}},
   {{0, 0}, {50, 0}, {100, 0}, {150, 0}, {200, 0}, {250, 0}, {300, 0},
    {350, 0}, {400, 0}, {450, 8}, {500, 2}, {550, 0}, {600, 2}, {650, 0},
    {700, 1}, {750, 0}, {800, 0}, {850, 1}, {900, 0}, {950, 0}, {1000, 0}},
   {{0, 0}, {50, 0}, {100, 0}, {150, 0}, {200, 0}, {250, 0}, {300, 0}, {350, 0},
    {400, 2}, {450, 6}, {500, 4}, {550, 0}, {600, 2}, {650, 0}, {700, 0},
    {750, 2}, {800, 1}, {850, 1}, {900, 1}, {950, 0}, {1000, 0}}}};

In[ ]:= ccCellDens =
  Table[Total[Table[((allCCcellCountsVsDepth[[m]])[[n]])[[All, 2]], {n, 1, 6}]] / volume,
   {m, 1, Length[allCCcellCountsVsDepth]}];

In[ ]:= meanCC = Mean[ccCellDens];

In[ ]:= semCC = (# / Sqrt@Length[ccCellDens]) & /@ StandardDeviation[ccCellDens];

In[ ]:= v1Color = RGBColor["#ff1f5b"];

In[ ]:= ccG = ListLinePlot[{meanCC, meanCC + semCC, meanCC - semCC},
    Filling → {1 → {{2}, Directive[Opacity[0.4], v1Color]},
      1 → {{3}, Directive[Opacity[0.4], v1Color]}},
    PlotStyle → {{v1Color, Thickness[0.006]}, Transparent, Transparent},
    DataRange → {0, 1000}, PlotRange → {{0, 1000}, {0, 400}}, FrameTicks →
     {{LinTicks[0, 400, MajorTickLength → {0, .03}, MinorTickLength → {0, 0}], None},
      {LinTicks[0, 1000, MajorTickLength → {0, .03}, MinorTickLength → {0, 0}], None}},
    Axes → False, TicksStyle → Thick, FrameStyle → Thick,
    Frame → {{True, None}, {True, None}},
    FrameTicksStyle -> Directive[FontOpacity -> 0, FontSize -> 0]];

In[ ]:= (***Corticocortical projection neuron number as a
  function of depth (50 um bins) from pia for all animals***)

In[ ]:= allCTcellCountsVsDepth =
  {{{{0, 0}, {50, 0}, {100, 0}, {150, 0}, {200, 0}, {250, 0}, {300, 0}, {350, 0}, {400, 0},
     {450, 0}, {500, 1}, {550, 2}, {600, 0}, {650, 0}, {700, 0}, {750, 0}, {800, 0}, {850, 3},
     {900, 7}, {950, 0}, {1000, 0}}, {{0, 0}, {50, 0}, {100, 0}, {150, 0}, {200, 0},
     {250, 0}, {300, 0}, {350, 0}, {400, 0}, {450, 0}, {500, 1}, {550, 0}, {600, 0},
     {650, 0}, {700, 0}, {750, 0}, {800, 0}, {850, 1}, {900, 5}, {950, 6}, {1000, 0}},
    {{0, 0}, {50, 0}, {100, 0}, {150, 0}, {200, 0}, {250, 0}, {300, 0},
     {350, 0}, {400, 0}, {450, 2}, {500, 1}, {550, 0}, {600, 0}, {650, 1},
     {700, 0}, {750, 0}, {800, 0}, {850, 0}, {900, 2}, {950, 6}, {1000, 10}},
    {{0, 0}, {50, 0}, {100, 0}, {150, 0}, {200, 0}, {250, 0}, {300, 0},
     {350, 0}, {400, 0}, {450, 0}, {500, 0}, {550, 1}, {600, 0}, {650, 0},
     {700, 0}, {750, 0}, {800, 7}, {850, 9}, {900, 0}, {950, 0}, {1000, 0}},
    {{0, 0}, {50, 0}, {100, 0}, {150, 0}, {200, 0}, {250, 0}, {300, 0},
     {350, 0}, {400, 0}, {450, 0}, {500, 2}, {550, 0}, {600, 0}, {650, 0},
     {700, 0}, {750, 0}, {800, 0}, {850, 0}, {900, 5}, {950, 5}, {1000, 1}},
    {{0, 0}, {50, 0}, {100, 0}, {150, 0}, {200, 0}, {250, 0}, {300, 0}, {350, 0},
     {400, 0}, {450, 2}, {500, 1}, {550, 1}, {600, 0}, {650, 0}, {700, 0},
     {750, 0}, {800, 1}, {850, 10}, {900, 0}, {950, 0}, {1000, 0}}},
```

```
{{{0, 0}, {50, 0}, {100, 0}, {150, 0}, {200, 0}, {250, 0}, {300, 0}, {350, 0},
   {400, 0}, {450, 0}, {500, 1}, {550, 2}, {600, 0}, {650, 0}, {700, 0},
   {750, 0}, {800, 0}, {850, 6}, {900, 1}, {950, 2}, {1000, 0}},
  {{0, 0}, {50, 0}, {100, 0}, {150, 0}, {200, 0}, {250, 0}, {300, 0},
   {350, 0}, {400, 0}, {450, 0}, {500, 2}, {550, 0}, {600, 0}, {650, 0},
   {700, 0}, {750, 0}, {800, 1}, {850, 4}, {900, 5}, {950, 2}, {1000, 0}},
  {{0, 0}, {50, 0}, {100, 0}, {150, 0}, {200, 0}, {250, 0}, {300, 0},
   {350, 0}, {400, 0}, {450, 0}, {500, 0}, {550, 1}, {600, 1}, {650, 2},
   {700, 0}, {750, 0}, {800, 0}, {850, 0}, {900, 3}, {950, 6}, {1000, 2}},
  {{0, 0}, {50, 0}, {100, 0}, {150, 0}, {200, 0}, {250, 0}, {300, 0}, {350, 0},
   {400, 0}, {450, 0}, {500, 3}, {550, 1}, {600, 0}, {650, 0}, {700, 0},
   {750, 2}, {800, 0}, {850, 1}, {900, 1}, {950, 10}, {1000, 2}},
  {{0, 0}, {50, 0}, {100, 0}, {150, 0}, {200, 0}, {250, 0}, {300, 0},
   {350, 0}, {400, 0}, {450, 0}, {500, 3}, {550, 0}, {600, 0}, {650, 0},
   {700, 0}, {750, 0}, {800, 0}, {850, 0}, {900, 6}, {950, 2}, {1000, 0}},
  {{0, 0}, {50, 0}, {100, 0}, {150, 0}, {200, 0}, {250, 0}, {300, 0}, {350, 0},
   {400, 0}, {450, 3}, {500, 0}, {550, 2}, {600, 0}, {650, 0}, {700, 0},
   {750, 1}, {800, 0}, {850, 8}, {900, 1}, {950, 0}, {1000, 0}}},
 {{{0, 0}, {50, 0}, {100, 0}, {150, 0}, {200, 0}, {250, 0}, {300, 0}, {350, 0},
   {400, 0}, {450, 1}, {500, 2}, {550, 0}, {600, 1}, {650, 0}, {700, 0},
   {750, 0}, {800, 1}, {850, 8}, {900, 10}, {950, 6}, {1000, 0}},
  {{0, 0}, {50, 0}, {100, 0}, {150, 0}, {200, 0}, {250, 0}, {300, 0}, {350, 0},
   {400, 1}, {450, 4}, {500, 4}, {550, 0}, {600, 1}, {650, 1}, {700, 4},
   {750, 8}, {800, 6}, {850, 10}, {900, 6}, {950, 2}, {1000, 1}},
  {{0, 0}, {50, 0}, {100, 0}, {150, 0}, {200, 0}, {250, 0}, {300, 0}, {350, 0},
   {400, 3}, {450, 4}, {500, 3}, {550, 0}, {600, 2}, {650, 1}, {700, 2},
   {750, 4}, {800, 21}, {850, 7}, {900, 2}, {950, 1}, {1000, 2}},
  {{0, 0}, {50, 0}, {100, 0}, {150, 0}, {200, 0}, {250, 0}, {300, 0}, {350, 0},
   {400, 0}, {450, 1}, {500, 6}, {550, 2}, {600, 0}, {650, 0}, {700, 2},
   {750, 1}, {800, 0}, {850, 5}, {900, 12}, {950, 8}, {1000, 1}},
  {{0, 0}, {50, 0}, {100, 0}, {150, 0}, {200, 0}, {250, 0}, {300, 0}, {350, 0},
   {400, 0}, {450, 1}, {500, 3}, {550, 0}, {600, 2}, {650, 2}, {700, 0},
   {750, 0}, {800, 1}, {850, 1}, {900, 3}, {950, 2}, {1000, 12}},
  {{0, 0}, {50, 0}, {100, 0}, {150, 0}, {200, 0}, {250, 0}, {300, 0}, {350, 0},
   {400, 0}, {450, 0}, {500, 7}, {550, 1}, {600, 0}, {650, 0}, {700, 4},
   {750, 2}, {800, 2}, {850, 4}, {900, 3}, {950, 5}, {1000, 3}}}};
```

In[•]:=
```
ctCellDens =
  Table[Total[Table[((allCTcellCountsVsDepth[[m]])[[n]])[[All, 2]], {n, 1, 6}]] / volume,
   {m, 1, Length[allCTcellCountsVsDepth]}];
```

In[•]:=
```
meanCT = Mean[ctCellDens];
```

In[•]:=
```
semCT = (# / Sqrt@Length[ctCellDens]) & /@ StandardDeviation[ctCellDens];
```

In[ ]:=
```
ctG = ListLinePlot[{meanCT, meanCT + semCT, meanCT - semCT}, Filling →
    {1 → {{2}, Directive[Opacity[0.4], Blue]}, 1 → {{3}, Directive[Opacity[0.4], Blue]}},
  PlotStyle → {{Blue, Thickness[0.006]}, Transparent, Transparent},
  DataRange → {0, 1000}, PlotRange → {{0, 1000}, {0, 400}}, FrameTicks →
   {{LinTicks[0, 400, MajorTickLength → {0, .03}, MinorTickLength → {0, 0}], None},
    {LinTicks[0, 1000, MajorTickLength → {0, .03}, MinorTickLength → {0, 0}], None}},
  Axes → False, TicksStyle → Thick, FrameStyle → Thick,
  Frame → {{True, None}, {True, None}},
  FrameTicksStyle -> Directive[FontOpacity -> 0, FontSize -> 0]];
```

In[ ]:=
```
(*****************************)
```

In[ ]:=
```
Show[ctG, ccG]
```

Out[ ]=