```
1
   import numpy as np
 2 from scipy.integrate import odeint
 3 from scipy.optimize import curve fit
 4 from scipy.optimize import differential_evolution
 5 import matplotlib.pyplot as plt
 6 from matplotlib.backends.backend pdf import PdfPages
 7
   import pandas as pd
 8
   t = np.linspace(0,34800, num=6961)
 9
   rawdata =
10
   np.transpose(np.delete(np.genfromtxt('nut1long ononly.csv',delimiter=','),0,0))
   newdata = list(rawdata.flatten())
11
12 | #new = newdata[0:24480:240]
   lightdata = np.transpose(np.delete(np.genfromtxt('longlight ononly.csv',
13
   delimiter=','),0,0))
14
15
   def sqres(ptuple):
        return np.sum((np.asarray(newdata)-func(t,*ptuple))**2)
16
17
18
   #def func(t,d1,k1,Kd,n,d2,k2,k3):
19
   def func(t,d2,k2,k3):
20
        inivalues = [1,0,0,0,0,0,0]
21
        arrayvalues = np.asarray([])
22
23
        for i in range(len(lightdata[:,0])):
24
            def I(t):
25
                tindex = t/5
                if tindex > 6960:
26
                    tindex = 6960
27
28
                return lightdata[i][int(tindex)]
29
30
            #def odes(z,t,d1,k1,Kd,n,d2,k2,k3):
31
            def odes(z,t,d1,k1,k3):
32
                Pu, Pb, Pa, mRNA, mCherry1, mCherry2, mCherry3 = z
33
                d1 = 0.019905
                k1 = 0.08299
34
35
                Kd = 90.41
36
                n = 0.964487
37
                #d2 = 486.67
                #k2 = 6.597
38
39
                #k3 = 0.0539
40
41
42
                d3 = 0.000077
43
                k4 = 1.25
```