

There are hardly any raw experimental data which is easily available in the field of low dose hyper-radiosensitivity and induced radioresistance research. This is especially important in the case of mathematical modelling, where researchers usually do not perform experiments, but they would like to compare their results to the actual behaviour of the cells. The aim of this study is to collect datasets featuring experiments with various cell cultures showing hyper-radiosensitivity and induced radioresistance from published articles. The data are collected by manually reading each data point from the figures of the articles.

If you publish your research using this database, please cite the following reference:
Polgár Sz, Schofield PN, Madas BG 2021. Data collection and analysis on low dose hyper-radiosensitivity and induced radio-resistance. <https://doi.org/10.20348/STOREDB/1163>

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To create the first version of the database, we used overall 46 articles containing 101 datasets. The oldest article was published in 1993, and the newest in 2021. In each case, the authors, the title, the year of publication, the digital object identifier (DOI), and the exact figure from where the data was acquired is given in column A. One dataset contains the surviving fraction of the cell culture (column C) at a given dose in Gy (column B) and the minimum (column D) and maximum value (column E) of the whiskers of the standard deviation of the surviving fraction. The parameters of the fitted function were also recorded if they were given in the article, either parameters of the Linear-Quadratic (LQ) model or the Induced Repair (IR) model or both. The fit type is given in column G. From column H to column X, the different parameters (columns H, L, P, Q, U) are given with their standard deviations (columns I, M, R, V) or confidence limits (columns J, K, N, O, S, T, W, X). In column H, α refers to the LQ fit, while α_r to the IR fit. If there were parameters or values which were not given in the articles (or no fits were made), then we indicated it with an 'X' symbol. If the parameters has no meaning for the given fit (for example the LQ model has only 2 parameters, α and β , so the others cannot be applied), we used a '-' symbol. Lastly, we recorded the cell type in column Z and the characteristics of the irradiation in column AA.

The following articles were used to create the first version of the database:

<https://doi.org/10.1080/09553009314450831>
<https://doi.org/10.2307/3578255>
<https://doi.org/10.2307/3578779>
<https://doi.org/10.2307/3579043>
<https://doi.org/10.2307/3579302>
[https://doi.org/10.1016/S0027-5107\(96\)00118-2](https://doi.org/10.1016/S0027-5107(96)00118-2)
<https://doi.org/10.1080/095530099139214>
<https://doi.org/10.1080/095530099139908>
[https://doi.org/10.1016/S0360-3016\(00\)01471-1](https://doi.org/10.1016/S0360-3016(00)01471-1)
<https://doi.org/10.1080/09553000210166606>
<https://doi.org/10.1093/oxfordjournals.rpd.a006772>

<https://doi.org/10.1093/oxfordjournals.rpd.a006777>
<https://doi.org/10.1667/RR3013>
<https://doi.org/10.1080/0955300021000045646>
<https://doi.org/10.1667/RR3060>
<https://doi.org/10.1002/jic.11033>
<https://doi.org/10.1667/RR3130>
<https://doi.org/10.1016/j.ijobp.2003.09.053>
<https://doi.org/10.1016/j.nimb.2005.11.120>
<https://doi.org/10.1667/RR3553.1>
<https://doi.org/10.1667/RR0776.1>
<https://doi.org/10.1269/jrr.07093>
<https://doi.org/10.1186/1748-717X-3-19>
<https://doi.org/10.1007/s00411-007-0145-9>
<https://doi.org/10.1667/RR1717.1>
<https://doi.org/10.3109/09553000903242107>
<https://doi.org/10.1007/s11596-009-0122-4>
<https://doi.org/10.1016/j.ijobp.2010.01.028>
<https://doi.org/10.1259/bjr/33201506>
<https://doi.org/10.3109/09553002.2012.646046>
<https://doi.org/10.3109/09553002.2012.643274>
<https://doi.org/10.1093/jrr/rrs024>
<https://doi.org/10.1667/RR13358.1>
<https://doi.org/10.3109/09553002.2013.825061>
<https://doi.org/10.1016/j.ijobp.2013.10.031>
<https://doi.org/10.7860/JCDR/2015/14120.6074>
<https://doi.org/10.1080/09553002.2016.1206235>
<https://doi.org/10.1016/j.dnarep.2015.12.001>
<https://doi.org/10.1158/1078-0432.CCR-18-0533>
<https://doi.org/10.1667/RR14208.1>
<https://doi.org/10.1016/j.dnarep.2021.103113>
<https://doi.org/10.1016/j.ijobp.2009.04.088>
<https://doi.org/10.3389/fcell.2021.650819>
<https://doi.org/10.1016/j.nimb.2005.11.120>
[https://doi.org/10.1667/0033-7587\(2000\)154\[0406:EOLDNA\]2.0.CO;2](https://doi.org/10.1667/0033-7587(2000)154[0406:EOLDNA]2.0.CO;2)
<https://doi.org/10.1080/09553002.2017.1237057>