

Table 1: Crystallographic Data Collection and Analysis Hg-Rad50-CXXC

Crystal Data

Space group: P2₁ (2 molecules/asymmetric unit)

Unit cell dimensions (Å): a=32.0, b=78.0, c=53.3, β=91.5

MAD Data Collection

Data set	Hg inflection point	Hg high energy remote
Wavelength (Å)	1.0090	0.8321
Data range (Å)	30.0-2.2	30.0-2.2
Observations (unique)	133282 (13119)	133825 (13157)
Completeness (%) (last shell)	88.0 (62.9)	88.7 (65.4)
R _{sym} ^b (last shell)	0.076 (0.344)	0.082 (0.303)
I/σ(I) (last shell)	11.9 (2.1)	11.2 (2.6)

Refinement

Resolution range (Å)	8.0-2.2
Reflections F>0 (cross validation)	10580 (548)
Non-hydrogen atoms (solvent molecules)	1862 (132)
R _{cryst} ^c (R _{free} ^d)	0.225 (0.278)
R.m.s bond length (Å)/bond angles (°)	0.010 (1.79)
%core (disallowed) in Ramachandran plot	97.4 (0.0)

^a Anomalous completeness.^b R_{sym} is the unweighted R value on I between symmetry mates.^c R_{cryst} = $\sum |hkl| |F_{obs}(hkl)| - |F_{calc}(hkl)| / \sum |hkl| |F_{obs}(hkl)|$.^d R_{free} = the cross validation R factor for 5% of reflections against which the model was not refined.

Table 2. Effect of cysteines mutations in the CXXC motif of the Zn hook of Rad50 on ionizing radiation sensitivity of *S. cerevisiae* strain JPY483.

A. Cell line: JPY483 wild type

Cells plated	Dose (Gy)	Colonies	CFU/cells	Normalized
500	0	306	0.6120	1.0223
		303	0.6060	1.0122
		289	0.5780	0.9655
		mean	0.5987	1.0000
		std error	0.0181	0.0303
1000	150	120	0.1200	0.2004
		110	0.1100	0.1837
		112	0.1120	0.1871
		mean	0.1140	0.1904
		std error	0.0053	0.0088
1000	300	117	0.1170	0.1954
		109	0.1090	0.1821
		116	0.1160	0.1938
		mean	0.1140	0.1904
		std error	0.0044	0.0073

B. Cell line: JPY483 C₁G

Cells plated	Dose (Gy)	Colonies	CFU/cells	Normalized
2000	0	440	0.2200	0.9778
		476	0.2380	1.0578
		434	0.2170	0.9644
		mean	0.2250	1.0000
		std error	0.01136	0.05048
10000	150	173	0.0173	0.0769
		158	0.0158	0.0702
		174	0.0174	0.0773
		mean	0.0168	0.0748
		std error	0.00090	0.00398
20000	300	173	0.0087	0.0384
		150	0.0075	0.0333
		153	0.0077	0.0340
		mean	0.0079	0.0353
		std error	0.00063	0.00278

C. Cell line: JPY483 C₂G

Cells plated	Dose (Gy)	Colonies	CFU/cells	Normalized
2000	0	556	0.2780	1.0484
		550	0.2750	1.0371
		485	0.2425	0.9145
		mean	0.2652	1.0000
		std error	0.01969	0.07424
20000	150	155	0.0078	0.0292
		173	0.0087	0.0326
		191	0.0096	0.0360
		mean	0.0087	0.0326
		std error	0.00090	0.00339
50000	300	33	0.00066	0.0025
		22	0.00044	0.0017
		27	0.00054	0.0020
		mean	0.0005	0.0021
		std error	0.00011	0.00042

D. Cell line: JPY483, empty vector

Cells plated	Dose (Gy)	Colonies	CFU/cells	Normalized
1000	0	461	0.4610	1.0199
		453	0.4530	1.0022
		442	0.4420	0.9779
		mean	0.4520	1.0000
		std error	0.00954	0.02110
5000	150	134	0.0268	0.0593
		138	0.0276	0.0611
		137	0.0274	0.0606
		mean	0.0273	0.0603
		std error	0.00042	0.00092
20000	300	28	0.0014	0.0031
		36	0.0018	0.0040
		30	0.0015	0.0033
		mean	0.0016	0.0035
		std error	0.00021	0.00046