FORMAT OF EXTENDED ABSTRACTS

All text, including the abstract, references and figure legends, should be double-spaced. The top of the first page should contain the article title, author names(s) and affiliations(s), the name of and complete contact information for the corresponding author. Immediately after this information, begin the text for the extended abstract not exceeding four double-spaced pages (font size of 12 pt in Times Roman or similar font, with one-inch margins on all sides).

Radiation Quantities and Units

Authors should use the International System of Units (SI). Centigray (cGy) and centisievert (cSv) should be used only for values less than 1 Gy and 1 Sv, respectively.

Abbreviations and Nomenclature

The use of too many abbreviations, symbols and acronyms makes a paper difficult to read. *Radiation Research* is a multidisciplinary journal, and short forms common in one field may not be recognized by all readers. Thus these short forms should be used sparingly, and only standard abbreviations should be used. A list of some abbreviations that can be used without explanation in the text is included at the end of the Information for Authors.

Authors are referred to the following guides for assistance with abbreviations and nomenclature: *Compendium of Biochemical Nomenclature and Related Documents* (1992); *The ACS Style Guide: A Manual for Authors and Editors*, 2nd ed. (1997); *Scientific Style and Format: The CBE Manual for Authors, Editors, and Publishers,* 6th ed. (1994); *Mathematics into Type,* revised ed. (1979); *AIP Style Manual* (1990). When there is disagreement between a style guide and the journal's style, the journal's style should be followed.

Authors should use the nomenclature for genes and proteins that has been approved by the nomenclature committees for each species. The following Web sites provide information that is updated regularly: Human Gene Nomenclature Committee, http://www.gene.ucl.ac.uk/nomenclature; Mouse Genome Informatics, http://www.informatics.jax.org/; The Rat Genome Database (RATMAP), http://ratmap.gen.gu.se/.

Tables and Figures

Tables and Figures are strongly discouraged in these extended abstracts.

Footnotes

Footnote material should be indicated in the text by superscript Arabic numerals and should be cited consecutively throughout the article starting with the title. A double-spaced listing of footnotes should be provided on a separate page at the end of the manuscript.

References

All references should be cited in the text by italicized Arabic numerals in parentheses (in order of appearance). The list of references cited should be double-spaced and should begin on a separate page in numerical order. Literature cited should be limited to material in the open literature; reports, private communications, etc. should be given as footnotes with adequate information as to their source and availability. References should be appropriate and not unnecessarily numerous (limit 10 and preferably less). The identification of unpublished results and private communications
may also be made directly in the text, in parentheses. Note the following format for references:

1. T. Stamato and N. Denko, Asymmetric field inversion gel electrophoresis: A new method for detecting DNA double-strand breaks in mammalian cells. *Radiat. Res.* **121**, 196-205 (1990).

2. D. M. Bates and D. G. Watts, *Nonlinear Regression Analysis and Its Applications.* Wiley, New York, 1988.

3. J. D. Chapman, Biophysical models of mammalian cell inactivation. In *Radiation Biology in Cancer Research* (R. E. Meyn and H. R. Withers, Eds.), pp. 21-32. Raven Press, New York, 1980.

In the case of papers with more than 10 authors, only the first 9 authors and the last author should be listed in the reference.

Abbreviations of journal names should follow the style of *Index Medicus, Medline* and *The ACS Style Guide,* 2nd ed. Inclusive pagination should always be given.

ABBREVIATIONS

The following abbreviations may be used in the text without definition.
A, ampere
a.c., alternating current
a.m., ante meridiem
Ab, antibody
mAb, monoclonal antibody
ACTH, adrenocorticotropin
AIDS, acquired immunodeficiency syndrome
ANOVA, analysis of variance
apo, apolipoprotein (also apo A, apo B, etc.)
ATP, adenosine triphosphate (also ADP, AMP, etc.)
bp, base pair
Bq, becquerel
BrdU, BrdUrd, bromodeoxyuridine
BSA, bovine serum albumin
C, coulomb
°C, degree(s) Celsius
cAMP, cyclic AMP
CFU, colony-forming unit
CoA, coenzyme A
cpm, counts per minute
cps, counts per second
CT, computer-assisted tomography
D, absorbed dose
D_0
D_q
d.c., direct current
Da, dalton
kDa, kilodalton
DEAE, diethylaminoethyl
df, degrees of freedom
DMEM, Dulbecco's modified Eagle's medium
DMSO, dimethylsulfoxide
DNA, deoxyribonucleic acid
cDNA, complementary DNA
mtDNA, mitochondrial DNA
rDNA, ribosomal DNA

DNP, dinitrophenyl
DSB(s), double-strand break(s)
DTT, dithiothreitol
EBV, Epstein-Barr virus
ED_{50}, 50% effective dose
EDTA, ethylenediaminetetraacetic acid
EGF, epidermal growth factor
EGTA, ethyleneglycon-*bis*(β-aminoethyl ether)*N,N′*-tetraacetic acid
ELISA, enzyme-linked immunosorbent assay
ENDOR, electron nuclear double resonance
EPR, electron paramagnetic resonance
eV, electron volt(s)
exp, exponential
FACS®, registered trademark of Becton Dickinson for a fluorescence-activated cell sorter
FBS, fetal bovine serum
FCS, fetal calf serum
FISH, fluorescence *in situ* hybridization
FITC, fluorescein isothiocyanate,
g, gram
g, unit of gravity
GM-CSF, granulocyte macrophage colony-stimulating factor
GSH, glutathione, reduced
Gy, gray
H&E, hematoxylin and eosin
H, dose equivalent
h, hour
HBSS, Hanks' balanced salt solution
HDL, high-density lipoprotein
H_E, effective dose equivalent
Hepes, *N*-2-hydroxyethylpiperazine-*N′*-ethane sulfonic acid
HIV, human immunodeficiency virus
HPLC, high-performance liquid chromatography
Hz, hertz
i.m., intramuscular, intramuscularly
i.p., intraperitoneal, intraperitoneally
i.v., intravenous, intravenously
IgA, IgB, etc., immunoglobulin A, B, etc.
IL, interleukin (e.g. IL2)
IR, infrared (*not* ionizing radiation)
J, joule
K, degree(s) kelvin
K, equilibrium constant
kb, kilobase
K_m, Michaelis constant
kVp, peak kilovoltage

LD_{50}, 50% lethal dose
LDL, low-density lipoprotein
LET, linear energy transfer
liter(s), liter(s) (do not abbreviate)
µl, microliter(s)
ml, milliliter(s)
ln, natural logarithm
log, logarithm
LPS, lipopolysaccharide
m, meter(s)
cm_3, cubic centimeter(s)
µm, micrometer(s)
M, molar
M, morgan
MEM, minimum essential medium
min, minute
mmHg, millimeters of mercury
mol, mole(s)
mol. wt., molecular weight
MRI, magnetic resonance imaging
n, number in study, group
NAD, nicotinamide adenine dinucleotide (also NADH, NADP, etc.)
no., number
NS, not significant
OD, optical density
OER, oxygen enhancement ratio
P, probability
p.m., post meridiem
Pa, pascal
PAGE, polyacrylamide gel electrophoresis
PAS, periodic acid-Schiff reagent
PBL, peripheral blood lymphocyte
PBS, phosphate-buffered saline
PCR, polymerase chain reaction
PDGF, platelet-derived growth factor
PET, positron emission tomography
PHA, phytohemagglutinin
Pipes, piperazine-*N,N′-bis*(2-ethanesulfonic acid)
PMA, phorbol myristate acetate
PMSF, phenylmethylsulfonyl fluoride
r, correlation coefficient
r.m.s., root mean square
RBE, relative biological effectiveness
RFLP, restriction fragment length polymorphism
RNA, ribonucleic acid
mRNA, messenger RNA

mtRNA, mitochondrial RNA
nRNA, nuclear RNA
rRNA, ribosomal RNA
tRNA, transfer RNA
rpm, revolutions per minute
s, second(s)
SD, standard deviation
SDS, sodium dodecyl sulfate
SEM, standard error of the mean
SOD, superoxide dismutase
SSB(s), single-strand break(s)
SSC, standard saline citrate
Sv, sievert
T, tesla
$t_{1/2}$, half-life
TCA, trichloroacetic acid
TGF, transforming growth factor
TLC, thin-layer chromatography
TNF, tumor necrosis factor
Tris, *tris*(hydroxymethyl)-aminomethane
U, unit(s)
IU, international unit(s)
UV, ultraviolet
V, volt(s)
VLDL, very low-density lipoprotein
W, watt(s)
kW, kilowatt(s)