SUGGESTED GUIDELINES FOR PEER-REVIEWED ARTICLES

International Photodynamic Association

Board of Directors
Training and Education Committee
Communication and Outreach Committee

PRE-CLINICAL STUDIES (in vitro)

Recognizing that the focus and scope of every study is unique, the structure and details of each article will vary. However, any publication involving PDT or phototoxicity studies must include certain essential pieces of information that are necessary, but not sufficient, as outlined below. These guidelines have been assembled and reviewed by the International Photodynamic Association.

Photosensitizer

- Name of photosensitizer (Generic name)
- Supplier of photosensitizer, company from which the photosensitizer was obtained, commercial name of photosensitizer, if applicable
- Concentration of photosensitizer
- Solvent used to obtain spectrum and measure photosensitizer concentration
- Spectrum of the photosensitizer or references citing absorbances in relevant solvent(s)
- Photosensitizer-light interval (duration of photosensitizer incubation)
- Medium change prior to irradiation: specify whether the photosensitizer was removed prior to irradiation and if/how any wash steps were performed

Nanoformulation of Photosensitizer or Photosensitizing Nanoparticles

- Nanoformulation constituents
- Nanoformulation dimensions/diameter
- Concentration of photosensitizer equivalent if applicable
- Photosensitizer loading as w/w% or mol% with respect to carrier if applicable

Light Dose

- Light source: e.g. Laser, LED, Lamp (mono/polychromatic)
- Light dose parameters
    - Peak wavelengths and bandwidth of light source (filters used, if any)
    - Irradiance
    - Duration
    - Radiant exposure
    - Report the energy density (not time) as independent variable in dose response curves
- Method to determine power density
    - Spot size
    - Beam characteristics, optical components
        - Top versus bottom irradiation
        - Diffusing filter or collimating lens used to enhance beam uniformity?
        - Array of light sources (LED) versus single light source, fiber (free space versus coupled)
    - Power/energy meter used

- LD_{50} as a function of photons absorbed to allow for comparison across studies independent of wavelength and photosensitizer concentration to emphasize reproducibility across labs (nice to have)
    - Ideally given in μM * Jcm^-2
    - or hv/cm^-3

Experimental Design

- Rationale for fixing versus varying dose parameters
    - e.g. if a fixed light dose was used with varying photosensitizer concentration, provide justification
    - e.g. if only a single irradiance is investigated, provide justification

Cell line

- Name of cell line
- Source of cell line
- Range of passage numbers used
- Culture conditions
- Medium used during photoirradiation (+/- phenol red)
- Cell line validation and mycoplasma testing dates (Strongly recommended)

Readouts/Endpoints of PDT response

- Type(s) of assay(s) for viability/proliferation
- Examples below (not a comprehensive list)
    - Colony formation assay
    - Cell counts (+/- Trypan blue)
    - MTT/MTS (note: this is a test for cytotoxicity, not viability)
    - CellTiter Glo
    - Calcein green
- Interval between last treatment and the endpoint assay
- Viability/level of toxicity corresponding to molecular/phenotypic characterization of response

PRE-CLINICAL STUDIES (in vivo)

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Photosensitizer

- Name of photosensitizer
- Dose of photosensitizer in mg/kg or mg/m^2
- Solvent used to measure photosensitizer concentration
- Spectrum or references citing absorbances of the photosensitizer
- Route of administration
- Photosensitizer-light interval
- Spectrum or reference citing absorbances relevant to excitation wavelength(s) used in the study

Nanoformulation of Photosensitizer of Photosensitizing Nanoparticles

- Nanoformulation constituents
- Nanoformulation dimensions/diameter
- Dose of administered Nanoformulation in mg/kg or mg/m^2
- Dose of photosensitizer equivalent in mg/kg or mg/m^2 if applicable
- Photosensitizer loading as w/w% or mol% with respect to carrier if applicable

Light Dose

- Light source: e.g. Laser, LED, Lamp (mono/polychromatic)
- Light dose parameters
    - Peak wavelengths and bandwidth of light source (filters used, if any)
    - Irradiance
    - Duration
    - Radiant exposure
- Method for determining power density
    - Spot size
    - Geometry of light delivery
        - Beam characteristics
        - Topical irradiation, interstitial delivery etc.
        - Power/energy meter used
    - Integrating sphere
    - Last date of power meter calibration (strongly encouraged)
    - Consider use of more sophisticated dosimetry models that account for tissue thickness, tissue optical properties and photosensitizer concentration in the target tissue (encouraged)
- Type of fiber/Geometry of illumination
    - External beam illumination
        - Spot size
        - Units (J/cm^2)
    - Interstitial fiber
        - Active tip versus dead tip
        - Length of illumination tip
        - Units (J/cm)
    - Bare fiber
        - Units (J)

Animal Model

- Cell line, cell numbers and volumes/media for implantation
- Animal model: immunological status
- Approval for experiments (IACUC and/or related ethics approval)
- Target size/diameter of irradiation field

Readouts/Endpoints of PDT response

- Imaging based in vivo
    - contrast used to determine in vivo effect
- Histology ex vivo
- Survival period, if applicable
- Guidelines for termination of experiments