

*Boards' Fodder:**LASERS (Light Amplification by Stimulated Emission of Radiation)*

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LASER TYPE	WAVELENGTH (NM)	COLOR	CHROMOPHORE	MODE	CUTANEOUS APPLICATIONS	SIDE EFFECTS	EYE DAMAGE
Argon	418/514	Blue-Green	Hb, melanin	Continuous	Vascular lesions	Scarring, dyspigmentation	Retina & choroid
Argon-pumped tunable dye	577/585	Red	Porphyrin	Quasi-continuous	Vascular lesions, facial telangiectasias, rosacea, poikiloderma of Civatte, port-wine stains	Hypertrophic scarring, textural changes	Retina & choroid
Copper vapor/bromide	510/578	Green	Hb, melanin	Quasi-continuous	Pigmented lesions, vascular lesions, facial telangiectasias, rosacea, poikiloderma of Civatte, port-wine stains	Hypertrophic scarring, textural changes	Retina & choroid
Potassium-titanyl-phosphate (KTP)	532	Green	Melanin	Quasi-continuous	Pigmented lesions, vascular lesions, facial telangiectasias	Mild erythema, edema, transient crusting (*)	Retina & choroid
Nd: YAG, frequency-doubled	532	Green	Melanin	Q-switched	Pigmented lesions, red/orange/yellow tattoos	Systemic allergic or localized granulomatous tissue reaction to tattoo ink particles, mild erythema, edema, transient crusting (*)	Lens, retina, vitreous, & choroid
Pulsed dye	510				Pigmented lesions, red/orange/yellow tattoos	Systemic allergic or localized granulomatous tissue reaction to tattoo ink particles	Retina & choroid
	585-595	Yellow	Hb	Pulsed	Vascular lesions, hypertrophic/keloid scars, striae, verrucae, nonablative dermal remodeling, facial telangiectasias, port-wine stains, hemangiomas, pyogenic granulomas, Kaposi's sarcoma, poikiloderma of Civatte, facial rhytides	Epidermal damage, pigmentary change, postoperative purpura and edema (*)	Retina & choroid
Ruby	694	Red	Melanin, tattoo	Q-switched	Pigmented lesions, blue/black/green tattoos	Transient pigmentary alteration, systemic allergic or localized granulomatous tissue reaction to tattoo ink particles	Retina & choroid
				Pulsed (normal mode)	Hair removal	Blistering, epidermal crusting, purpura, transient pigmentary alteration (*)	Retina & choroid
Alexandrite	755	Red	Melanin, tattoo	Q-switched	Pigmented lesions, blue/black/green tattoos	Transient pigmentary alteration, systemic allergic or localized granulomatous tissue reaction to tattoo ink particles	Retina & choroid
				Normal mode	Hair removal, leg veins	Blistering, transient pigmentary alteration	

LASER TYPE	WAVELENGTH (NM)	COLOR	CHROMOPHORE	MODE	CUTANEOUS APPLICATIONS	SIDE EFFECTS	EYE DAMAGE
Diode	800-810		Melanin, Hb		Hair removal, leg veins, pseudofolliculitis barbae (^)	Pigmentary alterations	Lens, retina, & vitreous
Nd:YAG	1064	Infrared	Nonspecific	Q-switched	Pigmented lesions, blue/black tattoos	Crusting blistering, purpura, transient pigmentary alteration, pinpoint bleeding	Retina & cornea
				Normal mode	Hair removal, leg veins, nonablative dermal remodeling (^)	Crusting blistering, purpura, transient pigmentary alteration, pinpoint bleeding	
Nd:YAG, long-pulsed	1320	Infrared	Melanin		Nonablative dermal remodeling, atrophic scars, rhytides, pseudofolliculitis barbae (^)		Retina & choroid
Diode, long-pulsed	1450	Infrared	Melanin		Nonablative dermal remodeling, acne, atrophic scars, facial rhytides, transverse neck lines	Transient edema, erythema, postinflammatory hyperpigmentation	Cornea
Erbium: glass	1540	Infrared	Melanin		Nonablative dermal remodeling, rhytides (#)		Cornea
Erbium: YAG (pulsed)	2940	Infrared	Water	Continuous	Ablative skin resurfacing, epidermal lesions, seborrheic keratoses, verrucae vulgaris, xanthelasma, sebaceous gland hyperplasia, adnexal tumors	Postoperative erythema and edema, bacterial and viral infection, pigmentary alteration, ectropion, hypertrophic scar formation	Cornea
Carbon dioxide	10600	Infrared	Water	Continuous	Actinic cheilitis, verrucae, rhinophyma		Cornea
				Pulsed	Ablative skin resurfacing, collagen shrinkage, remodeling, epidermal/dermal lesions, seborrheic keratoses, verrucae vulgaris, xanthelasma, sebaceous gland hyperplasia, adnexal tumors	Postoperative erythema and edema, bacterial and viral infection, pigmentary alteration, ectropion, hypertrophic scar formation	Cornea

KEY:

- * Use is limited in darker skin types.
- ^ Safer for hair removal of darker skin types.
- # Safer for darker skinned patients.

REFERENCES:

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ABBREVIATIONS:

CW: Continuous-Wave Nd: Neodymium Hb: Hemoglobin
QS: Quality-Switched YAG: Yttrium-Aluminum-garnet



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