

Supplementary Table S1. Detailed methodology of selected studies

Reference	Harvest	SVF/ADSC isolation	SVF yield	Administered solution	Administration route to recipient site	Cannulas/needles	Age of patients	Age of scar(s)	Follow-up period
Wu et al. 2013 [50]	Site: anterior abdominal Infiltration: standard Klein solution Technique: 2 mm inner diameter cannula (Mentor BENSAT 330). Negative pressure limited to 350 mmHg. Volume: N/A	1. Lipoaspirate washed three times with saline 2. Gravitational decanting – aqueous phase removed 3. 1000 RCF, 3 min 4. Decantation of oil and aqueous phase 5. Spectroscopy (EP2346989 A1) to isolate SVF-rich fat	N/A	100+60 ml SVF. Subsequently 0,5ml autologous serum + 1ml hyaluronic acid (HA) filler; 0,1 PZ-U/mL NB6 collagenase	Subdermal, 100 ml, reverse injections, 3-5 ml per pass layering thin ribbons of graft to reach 20% overcorrection: Serum + HA – cross hatched manner - ring around and underneath the scar subdermally; collagenase intradermally	SVF: blunt spatulated tip HA + serum: 22G spinal needle Collagenase: 25G needle	N/A	2 yo	days 1–5 and 1, 2, 4, 8 and 12 weeks
Gentile et al. 2014 [60]	N/A	A) SVF-enriched fat. 1. Commercial Celution System used. 2. Additional wash and centrifugation cycles, 3. 5 mL of the enriched fat extracted 4. Added to harvested fat graft B) Coleman’s fat mixed with 0.5 mL of PRP. Fat subjected to centrifugation at 3000 RPM; AFT:PRP = 1ml:0,5ml C) Coleman’s fat	50 000-250 000 nucleated cells per milliliter of fat (automated count – manual count)	Group A: SVF-enriched fat grafts (up to 10mL, of which 5mL of SVF) Group B: 1mL of Coleman’s fat + 0,5 mL PRP Control group: Coleman’s fat	A) Subdermally B) Subdermally, small tunnels were previously created, cannulas with 1.5 mm diameter	N/A	21 - 69 yo	N/A	1 y (quantitative data report); mean 60 months
Carstens et al. 2015 [51]	Site: N/A Infiltration: N/A Technique: directly into a sterile processing canister (GID SVF-1) Negative pressure: N/A Volume: 108 ml dry fat	1. Washed three times with saline 2. 125 mL of lactated Ringer’s + collagenase enzyme 200CDU/mL 3. Incubation – 40 min, 38 °C, 150 RPM	>4x10 ⁷ mononuclear cells (5x10 ⁵ /g of dry fat)	1) 2mL of SVF containing a total of 6 x 10 ⁶ SVF-derived cells 2) 20mL of SVF enriched	1) divided and injected into 4 MCP joints 2) into subcutaneous space of the	N/A	58 yo	4 yo	6 weeks; 6, 12 and 24 months

		4. Centrifugation for 10 min at 800g		with a total of 2.7 x 10 ⁶ SVF-derived cells	dorsum of the hand				
		5. Removal of SVF from the bottom of the device							
Elkahky et al. 2016 [64]	Site: abdomen Infiltration: modified Klein's solution. Technique: blunt-tipped cannula Negative pressure: N/A Volume: 250ml	1. Washed 4-6 times with PBS 2. Digestion with 0.2% collagenase at 37 °C for 60 min with agitation 3. DMEM addition to inactivate collagenase 4. Centrifugation at 1500 RPM for 5 min. 5. Cellular pellet resuspension in fetal bovine serum and passing through 100um filter to remove debris 6. SVF collection 7. SVF was photoactivated using the AdiLight1 System (Adistem Pty) for 15 min.	7 to 86 x 10 ⁶ cells/sample	SVF resuspended in 10% fetal bovine serum	Intradermal injections	N/A	AT-ASC: 20 to 43 years (mean: 26.3 ± 7 years) PRP group: 20 to 44 years (mean: 28.7 ± 5 years)	N/A	1 and 3 months
Zhou et al. 2016 [61]	Details N/A, lipoaspiration from 2 subjects (allogenic)	1. Lipoaspirate digested with 0,75% collagenase type II under gentle agitation for 45 min at 37°C 2. Centrifugation at 300g for 10 min 3. Pellet filtered with a 70um nylon mesh filter 4. Resuspension in PBS 5. Centrifugation at 840g for 10 min 6. Supernatant discarded 7. Cell fraction cultured overnight at 37 °C/5% CO ₂ in culture medium 8. Cell population maintenance for 3-5 days until confluence 9. Medium changed to PBS free DMEM 10. Exposition to hypoxia (2% O ₂ /5% CO ₂ and balanced N ₂) for 72 hours	N/A	3 mL of ADSC-CM	topically applied onto fractional laser-treated sites	N/A	24 to 50 years (mean age 36.4)	N/A	1 month after the last treatment session

	ml of lidocaine hydrochloride 2% without adrenaline Technique: 3-mm cannula with 50 ml syringe, Negative pressure: manual Volume: N/A									
Carstens et al. 2017 [54]	Site: flanks and abdomen Infiltration: N/A Technique: N/A Negative pressure: N/A Volume: 250-350ml,	1.Lipoaspirate washed three times with sterile Lactated Ringer's Solution 2.Collagenase added - 200 CDU/ml of total volume, 40 min incubation at 38 °C and 150 rpm. 3. Human serum albumin was added (2.5% solution v/v) 4. centrifuged, 10 min at 800 g. 5. Pellet resuspended in 15 ml Hartmann solution Lipoaspirate mechanically emulsified by 30-35 passes through triport connector	2,37 - 9,83 x 10 ⁷ viable cells/g of fat	SVF	Subcutaneous injection	19G needle	26 ± 6,22 yo	6,7 ± 4,3 yo	6 months	
Bhooshan et al. 2018 [55]	Site: N/A Infiltration: N/A Technique: 3 mm mirrored triport Coleman's cannula Negative pressure: manual Volume: N/A		N/A	Classic Nanofat	Intralesional	27G needle	32.2 ± 12 yo	3 to 204 months (17 years); 79.4% - scars <5 year 20.6% - scars > 5 years	3 months	
Gu et al. 2018 [56]	Site: periumbilically Infiltration: 20 mL of lidocaine, 0.5%, and 1 mL of 1:1000 epinephrine per 1000 mL of saline Technique: 3mm multihole aspiration cannula to a 20-mL syringe, Negative pressure: manual by retracted plunger Volume: N/A	1. Saline rinsing and filtering, 2. Centrifuged at 3000 rpm for 3 min 3. The oil layer was decanted, and the aqueous component drained. 4. For mechanical emulsification, through connected to the Tulip transfer connector with three 1.4-mm holes 30 passes 5. centrifuged again at 3000 rpm for 3 min	N/A	Condensed nanofat	Intradermally, after 18G needle introduced to break underlying adhesions of the scar. Volume restored subdermally with fat graft combined with condensed nanofat through	29G needle/ 1.2 mm blunt cannula	21-62 yo, mean 38.25 yo;	3 to 26 years (mean formation on time, 7.45 years)	6 months	

					a blunt 1.2-mm cannula				
Lee et al. 2018 [57]	Site: abdomen. Infiltration: N/A Technique: 3mm blunt-tipped cannula. Liposuction kit used (Lipokit). Negative pressure: N/A Volume: 50 ml.	1. Centrifugation at 3500 RPM for 4 min. 2. Discarding the lower layer (20ml left) 3. Adding collagenase type II and incubation for 30 min in 37 °C (MaxSTEM kit) 4. Centrifugation at 3500 RPM for 3 min 5. Wash in Hartmann solution with 5% dextrose saline and gentamicin 6. Step 5 and 6 repeated 3 times	5,9 x 10 ⁷ cells per mL	2 ml of SVF	Subcutaneous and intradermal, no more than 5 ml/case	N/A	Study 1: 14-64 yo (37,47 ± 13,2)	Study 1: 3-240 mo (22,3 ± 51,8)	6 months
Uyulmaz et al. 2018 [58]	Site: chosen individually. Infiltration: 900 mL NaCl 0.9%, 0.25 mL adrenaline (1 mg/ mL), 20 mL of lidocaine (20 mg/mL). Technique: Tonnard 2.4 mm × 20 cm cannula with sharp side 1 mm holes Negative pressure: N/A Volume: 10-800 ml, mean 165	1. Wash with isotonic saline solution. 2. Mechanically emulsification 30 passes (2.4 mm Tulip connector) 3. Filtration through a nylon cloth with 0.5 mm pore size	N/A	Classic nanofat 1 to 25 mL (mean, 4.6 mL)	Injected intralesionally or intradermally	24, 25 or 27G sharp needles	15 to 64 years (mean, 42 years)	15 to 40 years (mean, 5.8 years)	155 ± 49 days (range, 87-312 days)
Abou Eitta et al. 2019 [62]	Site: abdomen, thighs, buttocks Infiltration: modified Klein's solution Technique: blunt-tipped cannula, 60 ml syringe Negative pressure: probably manually Volume: ~ 50 ml	1. Lipoaspirate washed with PBS and antibiotics/ antimycotic 2. Gravitational decanting and discarding of infranatant 3. Steps 2 and 3 repeated 6 times 4. Collagenase type IA and incubation for 37 °C for 1 hour 5. Infranatant with SVF aspirated and DMEM with 10% FBS added to inactivate the collagenase 6. Centrifugation at 300g for 10 min 7. SVF pellets collected with PBS, filtration with 100um cell strainer	Average: 6x10 ⁶ cells	SVF suspended in 1 ml PBS	Reported as injected intradermally (but „underneath atrophic scars“)	N/A	20 to 45 yo (mean 33.20 ± 6.51)	N/A	1, 2 and 3 months

		8. Centrifugation at 300g for 5 min 9. Optional RBC lysis buffer at room temperature for 5 min; then centrifuged again for 5 min. 10. Pellet washed twice with PBS 11. Resuspended in 1mL PBS, ready for injection								
Malik et al. 2019 [67]	Site: abdomen, thighs Infiltration: Ringer lactate with epinephrine 1:400,000 Technique: liposuction cannula (no details) connected with a 10 ml syringe Negative pressure: manually, plunger pulled back only a few ml (?) Volume: 25-65 ml, mean 34 ml	1. Gravitational decanting, oil and aqueous phase discarded 2. 0.075% collagenase added, incubated for 30 min at 37 °C with agitation 3. Centrifugation at 1200 RPM for 5 min. 4. Collection of SVF from the pellet	N/A	SVF, 10 ml?	Under scar – subcutaneous	Blunt infiltration cannula	22-45 yo, mean 32.1	N/A	1 and 6 months	
Jan et. Al 2019 [59]	Site: abdomen, lateral thigh, and/or the gluteal region. Infiltration: 0.9% saline 1000 mL, lidocaine 30 mL, and 1 mL of 1:1000 epinephrine Technique: 3-mm cannula with multiple sharp side holes of 1 mm attached to a 20-mL syringe. Negative pressure: plunger back by 2 mL Volume: N/A	1. Lipoaspirate rinsed with 0.9% saline 2. Emulsification by 30 syringe-syringe passes (unknown connector)	N/A	Classic nanofat	Selective intradermal or subdermal pre-tunneling. Fanwise pattern with a 1-mL syringe until the skin blanched or yellowish	18G	22.25 ± 5.79 y	>1yo	6 months	
Shalaby et al. 2020 [63]	Site: preferably abdomen or flanks/inner knees Infiltration: 500 ml of 0.9% saline solution, adrenaline 0.5 mg/ml, and 20 ml of lidocaine hydrochloride 2% without adrenaline Technique: Unknown cannula, 20ml syringe	1) Lipoaspirate washed with Lactated Ringer, incubated 3 min 2) centrifuged at 3000 RPM 3 min 3) Middle layer preserved 4) Mechanically emulsified by shifting s by 30 passes through 2.4 mm tulip connector 5) Another 30 passes with using (1.4 mm tulip connector)	N/A	Nanofat or nanofat + PRP	Superficial intradermal nanofat and additional subdermal injection	28G needle and 22-23G cannula	32.8 ± 11.2 yo (nanofat + PRP); 26.5 ± 9.1 yo (nanofat)	6.8 ± 7.6 yo (nanofat + PRP); 3.3 ± 2.7 (nanofat)	3 months	

	Negative pressure: retracted plunger Volume: N/A	6) 600 um nanofat filtration							
Pallua et al. 2020 [52]	Site: preferably abdomen and/or other Infiltration: adrenaline suspended in saline solution in a ratio of 1:200,000 Technique: blunt-tipped thin cannula, with a diameter of 2 mm, and 4 orifices, each gauge measuring 600um Negative pressure: N/A Volume: N/A	<ol style="list-style-type: none"> 1. lipoaspirate is centrifuged at 1200 g for 3 min 2. The oily and watery layers removed 3. Manual emulsification by 30 passes, usual connector 4. Centrifugation at 1200 g for 3 min 5. Middle layer preserved 	N/A	Condensed nanofat, in 1 case supplemented with PRP	Various author's preparation of recipient site before injections. Subcutaneous and/or intradermal	27G cannula.	41,33 ± 10,53	N/A	6 - 12 months

AFT – autologous fat transfer; N/A – not available; PRP – platelet-rich plasma; RCF – relative centrifugal force; RPM – revolutions per minute; SVF – stromal vascular fractions; yo – years old; mo – months old